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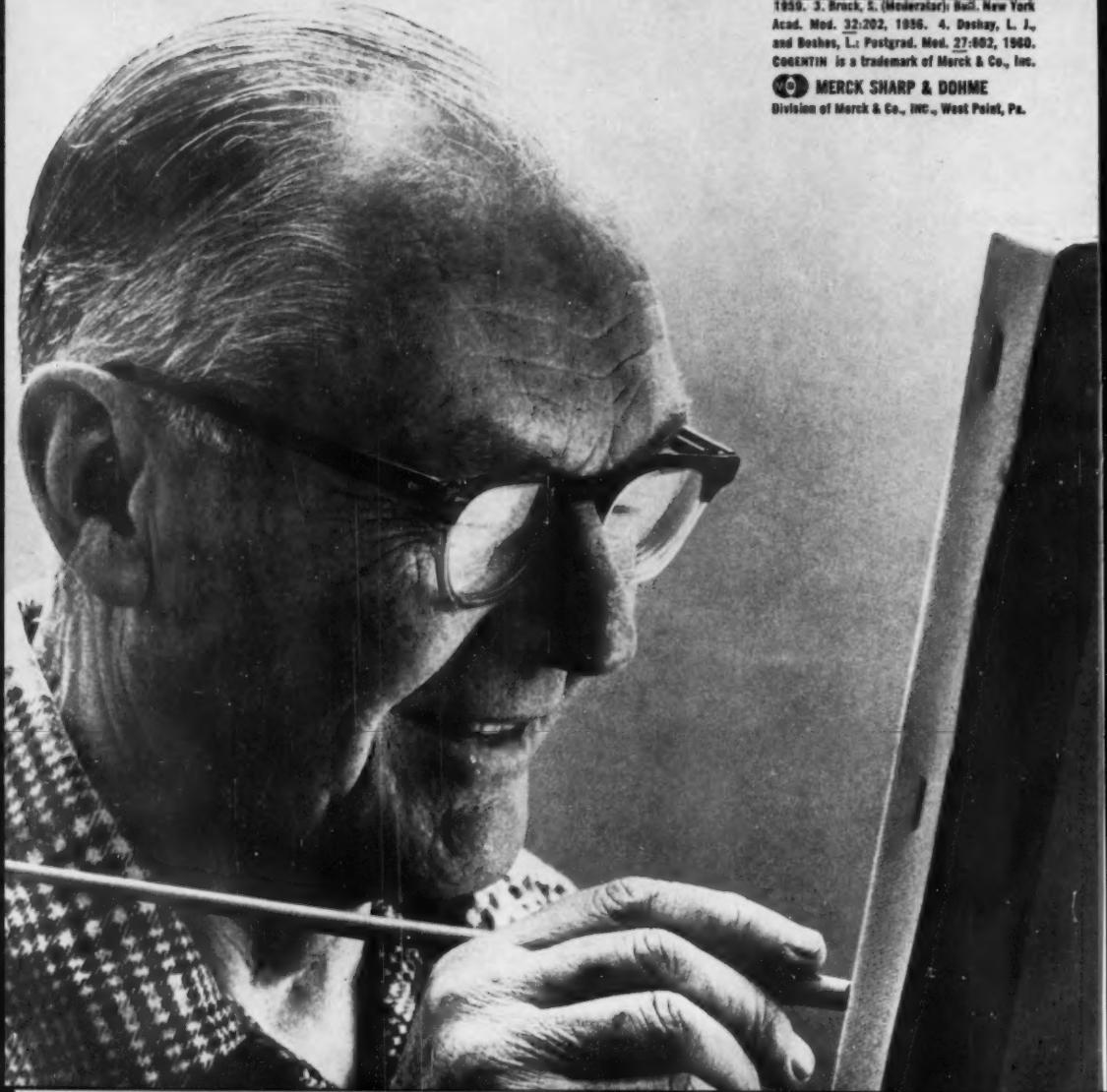
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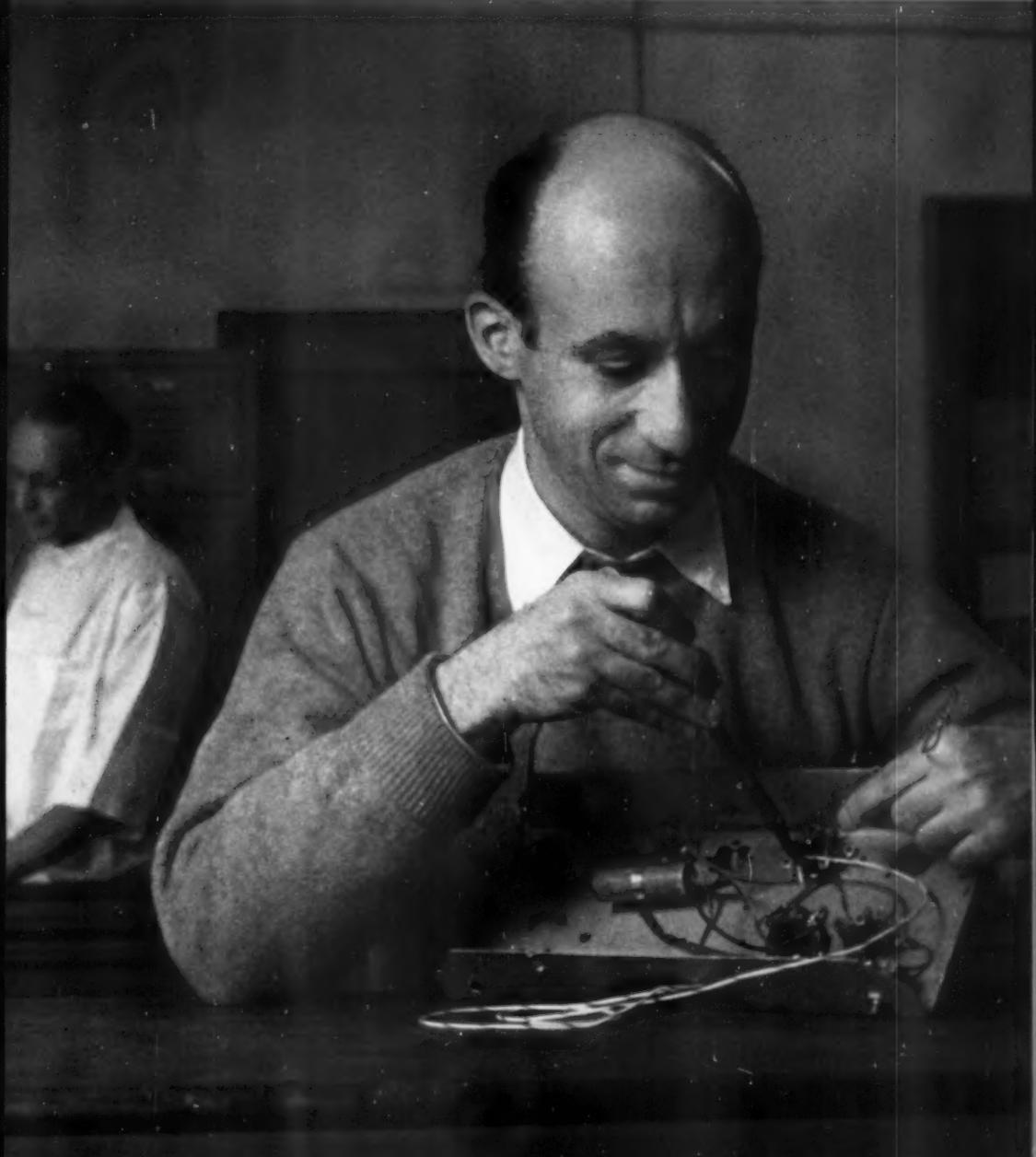
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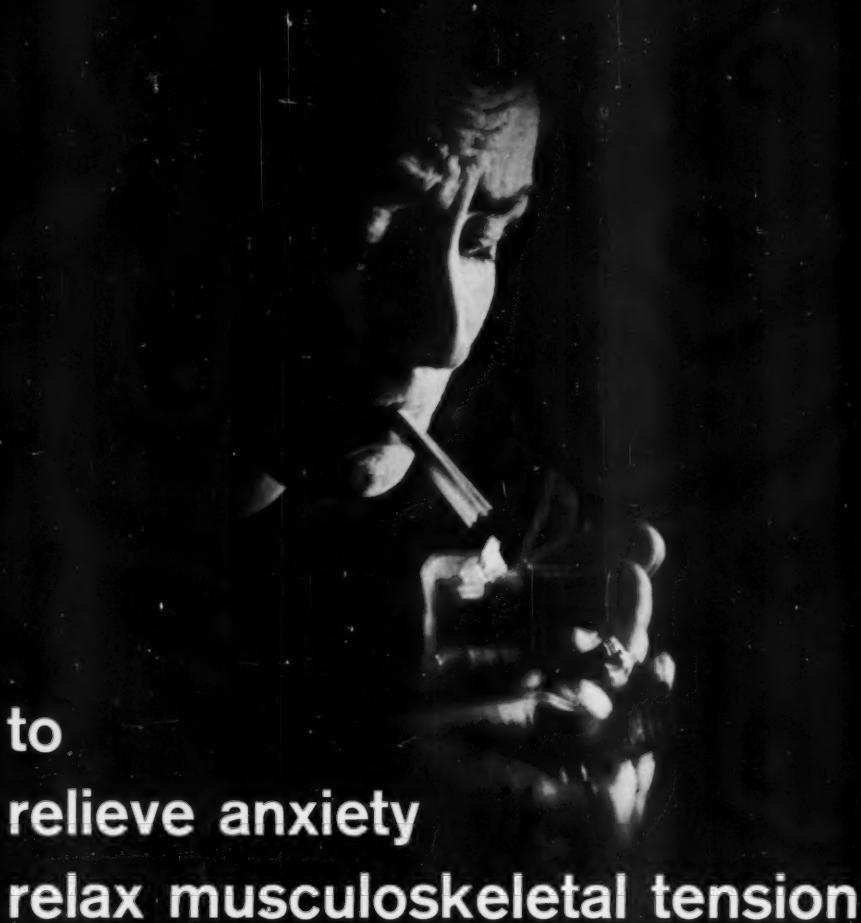
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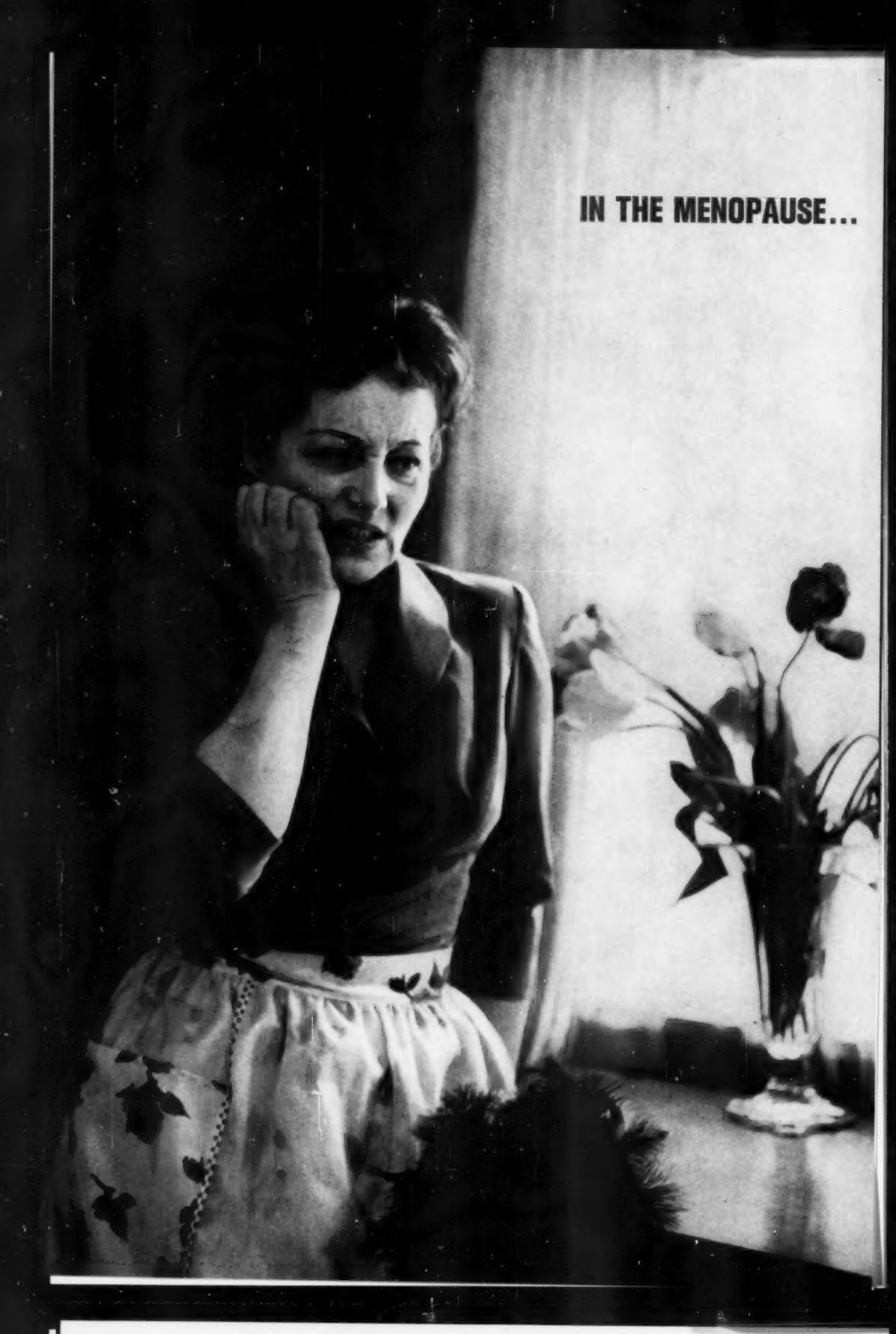
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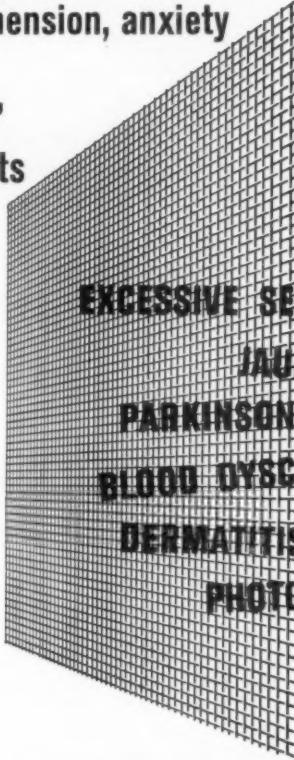


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THE ACADEMIC LECTURE
THE HEURISTIC ASPECT OF PSYCHIATRY¹

SEYMOUR S. KETY, M.D.²

For years I thought I knew exactly what should be said to this important body of psychiatrists if one had the unusual opportunity of pontificating before them. Now that your distinguished president and my kind preceptor has given me that opportunity, I falter. In these Fellowship Lectures a notable series of scholars have variously justified, judged, jeered, jugulated, and on one occasion even jilted you (in a remarkably cogent demonstration of the Uncertainty Principle). The lecture today can be traced directly to a meeting in the spring of 1951 with Robert Felix, your president, who excited me to leave a laboratory of cardiovascular physiology and to join a great institute he was building. For ten years I enjoyed the privilege of participating in a unique program of psychiatric research which was developed in the atmosphere of scientific freedom and sympathetic support with which he endowed it. It may be of some interest to read the impressions of one with such a background who has willingly and not unsympathetically wandered into psychiatry. I need not point out for this audience that these are ruminations based upon my observations but also upon my biases.

Much has been said of the relative lack of research interest in the field of psychiatry, compared with the strong motivation towards therapy among its practitioners and those who come for training. It may well be that this perception contributes to the position of surprisingly low prestige which psychiatry occupies among the medical specialties in the eyes of the medical student, at least as a recent survey in 3 schools indicates(1). If it is true that a vigorous motivation towards research has

only recently entered the field of psychiatry in contrast to some of the other branches of medicine, it is easy to see why.

There are fields of human endeavor where the initial motivation and achievement have been in the acquisition of fundamental knowledge, which only later has led to application. The demonstration of induced magnetic fields about an electrical conductor occurred before the development of the electric motor; basic knowledge of atomic structure was at hand before the possibility of fission and the release of atomic energy could have been realized. There are other fields, historically, where application has come first, to be revised, substantiated and improved upon by subsequent inquiry and accomplishment. Man made fire before he knew about oxygen and built bridges before he learned of Hooke's Law.

As opposed to the natural and the physical sciences, medicine and psychiatry, especially, are disciplines motivated to a large extent by a sensitivity to human suffering. It is easy to see how such a polarization might have distorted the orderly growth of these disciplines from the simpler pattern which cold logic would have preferred. The physician, the chemist, even the neurophysiologist can be patient-building small but hard facts one upon the other for a purpose in which he has faith but whose ultimate outcome he may not live to see. The neutron did not come begging to be discovered; but the patient suffering from disease or troubled or incapacitated by conflict cannot wait. The physician to whom he turns for help can hardly say, "Come back in three centuries or so when we may really understand these things."

Every branch of medicine has begun with therapy; only later and gradually were the basic and clinical sciences drawn in. We have seen in their order anatomy and pathology taking an early place as important medical sciences only 300 or 400

¹ Read at the 117th annual meeting of The American Psychiatric Association, Chicago, Ill., May 8-12, 1961.

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years ago. There was a long lag even after Harvey's notable achievement before physiology became recognized as a science which had contributions to make to medicine. Bacteriology struggled long to gain a foothold, then repaid its acceptance with a series of contributions to the alleviation of human illness which are still unmatched. Biochemistry, within the recollection of many of us, entered the field in strength and today is at a well deserved peak of acceptance, achievement and promise. The behavioral sciences have only recently begun to make their way into the medical curriculum and into the recognition of the physician as sciences basic to medicine. They have already begun to make remarkable progress but their most exciting potentialities and contributions remain ahead of them. Lagging far behind the development and recognition of the basic sciences, the various branches of medicine have marched from a therapeutic art to a clinical science. Much of this progress has occurred within our lifetime. The *materia medica* which our fathers learned, aside from a relatively few agents like digitalis and the hypnotic drugs, was elaborately specious, developed before modern pharmacology and perpetuated by the peculiar selectivity of uncontrolled clinical experience.

As recently as 52 years ago a small group of Young Turks, impatient with the impressionistic and anecdotal nature of medicine, organized the American Society for Clinical Investigation whose aim was to be "the cultivation of clinical research by the method of natural sciences; the unification of science and the practice of medicine; the encouragement of scientific investigation by the practitioner, and the diffusion of a scientific spirit among its members." Thirty-five years ago, in 1924, the Society first began the publication of its *Journal of Clinical Investigation*. On the first page of the first volume of that journal appears its first and last editorial, a noteworthy paper by Alfred E. Cohn, entitled "Purposes in Medical Research"(2). A study of that paper gives one a sense of the revolution which was taking place in medical thinking, no farther away than yesterday, and a taste of the judicious zeal which motivated some of its leaders. Most interesting of all one

can see in those pages an anticipation of the same renaissance which one feels is taking place in psychiatry at present. I should like to quote some of the passages:

We have . . . for some time been inquiring whether medicine is entitled to be called a science. To us the answer to this question is clear and unequivocal. It is clear because of the nature of the case. The phenomena of interest in medicine are the phenomena of disease as these are manifest in affected persons. They are phenomena which exist as concrete entities in nature, they are indivisible and they fall within the province of no other inquiry. They constitute the proper concern of medicine. Nor are the phenomena of disease the combination or resultants merely of other forces. They are not the resultants of forces known in physics or chemistry, or in physiology or mathematics, nor the resultants of any combination of these. Rapid and shallow breathing, for instance . . . remains a unique phenomenon, even though the terms in which it is characterized are anatomical or physiological or chemical. Anatomy or physiology or chemistry may supply the methodology for analyzing its occurrence, but the occurrence is something apart from and over and above the factors into which it can be resolved.

There is another passage, remarkable in its applicability to the present ferment in psychiatry:

This, then, is the task which academic medicine in the United States, now become self-conscious, has set itself; it is the task of Clinical Investigation. Its business involves a legitimate interest in learning as well as a means for furthering methods which lead to the cure of disease. It is vitally concerned in the success of both these projects. . . . We must appreciate the fact that perhaps there is no single road of salvation open; search for the single road has often led hunters far afield. (italics mine)

To give substance to ideas like these is the purpose which lies behind the work of the university clinics which are being founded in many parts of our country. They mean to take on new functions. Those on which they lay emphasis indicate the adoption of a wider interest in the problems of concern to medicine. In addition to the traditional responsibility for teaching, they avow the desire to contribute to an increase of knowledge. They are drawing to themselves new men, trained in a new way; they are being supplied with

new hospitals properly equipped with laboratories in which to pursue what Bernard called the *observation provoquée*.

Those forthright words reflected a development in medicine which contributed I am sure to the burgeoning of medical research to an unheralded state of acceptance, activity, and productivity. I have little doubt that a similar course, accelerated now by the unprecedented public support which it is receiving, lies ahead for psychiatric research; in fact, we are already well embarked upon it.

This ferment in psychiatry has a rich mash. Even a casual glance at the accomplishments in the basic disciplines of psychiatry in the past decade gives one cause for some gratification and optimism. The electron microscope, only recently applied to the nervous system has begun to outline the structure of what heretofore has been an operational concept—the synapse, and to establish the precise localization of certain neurosecretory elements within the cell(3, 4). Embryology in association with immunochemistry has very recently seen the development of growth promoting substances with specific action upon nervous tissue and the ability specifically to inhibit the growth of certain nervous tissues by their antibodies(5). Anatomy, joining hands with physiology, psychology and even sociology, has advanced our knowledge of the functional organization of the brain and its relationship to individual and social behavior(6, 7). Great strides have been made in the mapping of the human cerebral cortex and in the relationship of cortical physiology to subjective states and memory(8). Studies in the limbic system have elucidated some of the physiological substrates of affect, emotional state and sexual behavior(9). Highly specific chemoreceptors in the hypothalamus have been discovered capable of triggering appropriate sexual behavior in response to sex hormones(10). The reticular system and the more recently described sensory feedback systems have provided new concepts of the control of attention and the modulation of sensory input(11, 12).

In the past 10 years the field of neurochemistry has gained recognition and status

as a discipline. It has learned much about the energy metabolism of the brain and its correlation with mental state(13). The presence of norepinephrine and serotonin and other biogenic amines differentially distributed in significant fashion within the brain has been discovered and considerable research invested in their role in behavior and in the action of a number of psychotropic drugs(14, 15). Much has been learned of the synthesis and degradation of epinephrine, the first of the chemical mediators of mental state to be described(16, 17). This information has permitted the study of the metabolism of that hormone in schizophrenia(18) and will make possible measurement of its endogenous production in a variety of clinical conditions and disorders. Protein turnover and metabolism have been examined in the brain and the beginnings of support are appearing for the interesting hypothesis that in the protein molecule may lie some of the answers to the riddle of memory(19).

In the basic behavioral sciences there has been much activity of interest to psychiatry during the past 10 years. The imprinting process, the basis upon which young animals acquire crucial behavior patterns from early experience on a genetically prepared substrate has broadened our concept of instinctive behavior(20). The appetitive and aversive centers in the brain may have important significance to the physiology of affect(21). The widespread use of the conditioned reflex and the technique of operant conditioning has opened wide the study of some of the fundamental aspects of learning, motivation, and drug effects(22). In other branches of medicine the development of an animal model of a human disorder has frequently served as the spearhead for rapid progress toward its understanding and alleviation. Animal models of neuroses, anxiety states, and psychosomatic illness have now been described(23, 24) and the recent paradigms of maternal protection and deprivation in monkeys(25) will provide hypotheses for the more complex phenomena in man. Hilgard(26), Mirsky (27), Kubie(28), and Benjamin(29) among others have masterfully reviewed the evidence from basic research both in animals and man which support some of the funda-

mental assumptions of psychodynamic theory and which will serve as the bases for further heuristic hypotheses.

Although one tends to highlight those findings which seem to have greatest possible relevance to psychiatry, there are many more contributions of possibly greater moment whose relevance at the present time is obscure. I believe it was Virchow who said 100 years ago that biochemistry had little to offer at that time to pathology or to medicine, but he was quite sure that the time would come when it would.

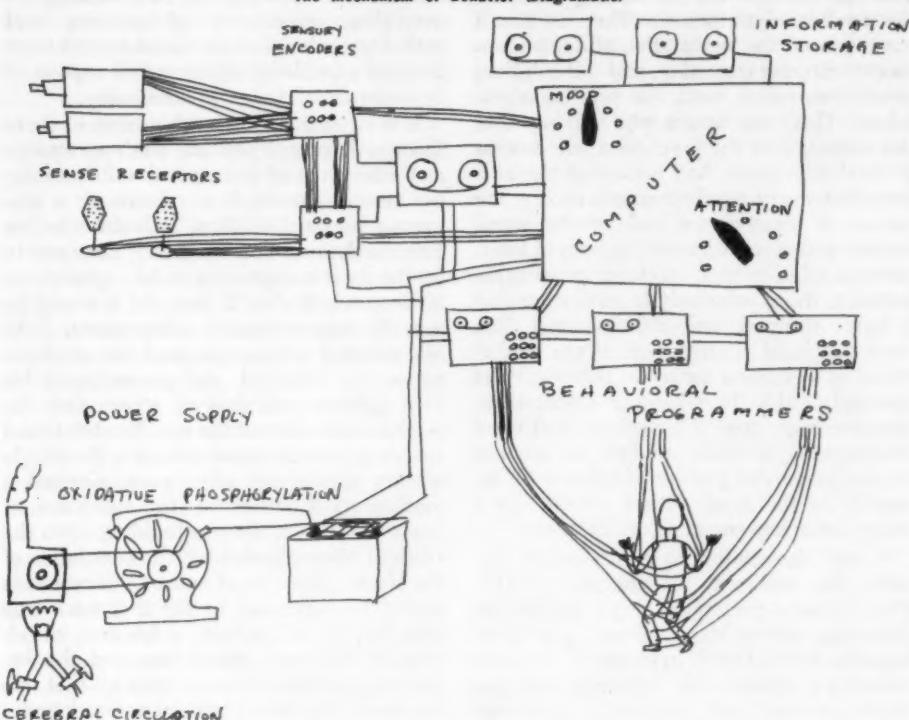
When we turn to mental illness, it appears that the practical accomplishments of research in the recent past have been few and the progress disappointingly slow. The accumulation of fundamental information goes on for a long time before it is possible to fit together the essential facts in a hypothesis which requires an equally long time for its evaluation. When we recognize the utter complexity for the field of human personality and behavior, normal as well as disordered, we are forced to assume that the stepwise progression toward an understanding of these phenomena will be slow indeed; only rarely and by the sheerest stroke of good fortune will there come a surge of material progress. Aside from paresis, the mental syndrome of pellagra, certain other toxic and metabolic psychoses, and phenylketonuria, the biological sciences have not yet contributed significantly to the understanding of etiology, and these achievements were accomplished some time ago. Other than that we have only hypotheses for the etiology and the pathogenesis of the mental disorders which continue to plague us.

Interestingly enough we tend to forget about the important achievements which have been made, such as those which I have enumerated, since once a mental disorder is reasonably well understood and has had its etiology and pathogenesis adequately explained it ceases to be part of psychiatry, as if we insisted that only the mysterious ailments were psychiatric in nature. Or is it that the training of so many psychiatrists of this generation is so predominantly in psychodynamic theory to the exclusion of the biological and even the social and psychological sciences that he feels uncertain

or aloof in the management of disorders where the important factors in etiology are biochemical or microbial, and relegates them cheerfully to neurology or to medicine? This would be unfortunate, if it were true. We need no longer today reiterate the thesis that the roots of psychiatry are just as firmly planted in biology as in the sciences which deal with experience and human relationships. If, on the basis of preconceived notions or the bias of particular training, we chop off one of these major roots, can we expect the tree to flourish? To state this position more clearly, I have sometimes employed a little diagram of the mechanisms of human behavior (Fig. 1).

Not all of the parts of this drawing are based upon established fact, and I expect that in the next few hundred years there will be some revisions in it. Yet I cannot help but feel that it *represents* the actual situation even though it describes it inaccurately. Human behavior, especially in those aspects which make it peculiarly human, has two important and absolutely essential components. There is the machinery and there is the incoming and stored information based on experience. There is no single discipline, unless it be psychiatry itself in its broadest sense, which is capable of describing and comprehending both components(30). In any disorder of behavior the so-called "lesions" are in both of these components, although it is possible for the primary defect to be in one or the other. Thus in the three conditions which I have already mentioned, paresis, pellagra, and phenylketonuria, the primary defect is in the machinery (if we confine our attention to the afflicted individual and for the purposes of this argument neglect a more fundamental lesion in society). I have no doubt at all that there are other disorders of personality and behavior where the primary disturbance has been in experience reflected in the stored information; and similarly no doubt that still other disorders require defects in both of these spheres. Although lesions have been postulated for many disorders in each of these areas, I think it is fair to say that none of them has been demonstrated with the rigor and clarity which characterize the three conditions I have mentioned. The

FIGURE 1
The Mechanism of Behavior (Diagrammatic)



"chemical lesion" of schizophrenia and the specific aspect of parental or family influence which are "schizophrenogenic" have in common the fact that they are both hypotheses. But they are heuristic hypotheses and are responsible for considerable current research.

There is need in such a scheme for both analytic chemistry and psychoanalysis, using the latter in its research rather than its therapeutic sense. The neurochemist can, if he is sophisticated, look for particular chemical components and study their metabolism in the brain. Before he was able to do that, however, it required a Thudichum to analyze the brain as a whole to the best of his ability, using the techniques which he had available and trying to introduce a minimum of denaturation or distortion to the compounds which he isolated, so that he ended up with a weighted analysis of the brain. In the same way the psychoanalytic process in its purest form can be looked

upon as a sort of information retrieval. Of course one can formulate specific questions and, using techniques of modern sociology and psychology as well as the examination and interview of the skilled psychiatrist, obtain responses to specific questions. But in order to know what questions to ask it would seem to be of fundamental importance to have some approximation to a total analysis of the object of discourse, be it brain or information, be its components "free" and "bound," or "conscious," "preconscious" and "unconscious." It would also be useful to know the relative weightings of these components in the whole. To some extent a non-directive psychoanalytic technique fulfills these criteria, at least it does so better than any other technique which we have today, especially if it recognizes and makes some compensation for the distortions introduced by the analytical procedure.

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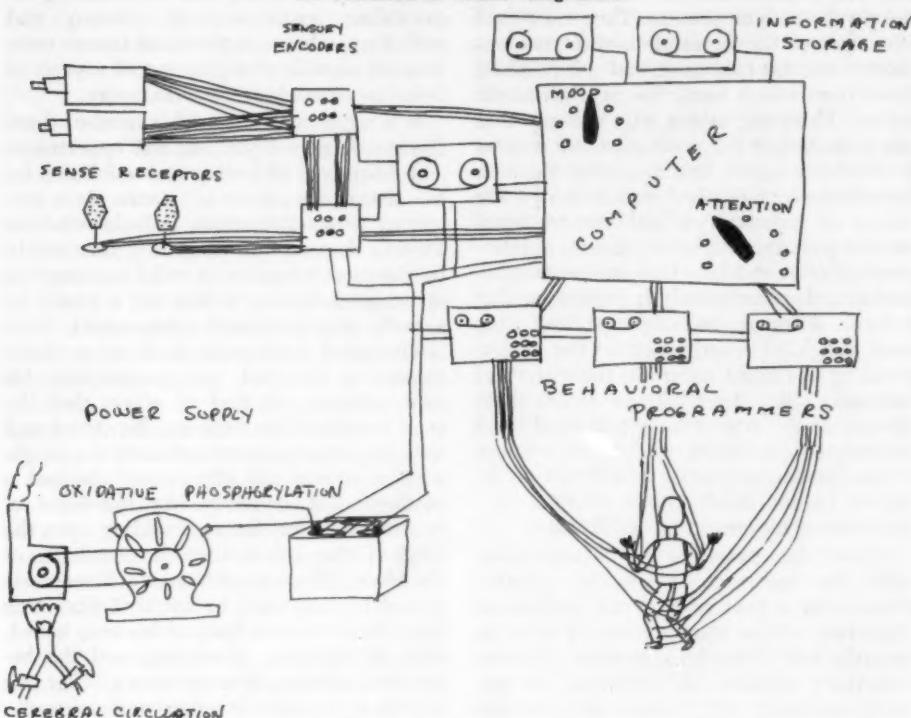
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this elementary formulation from two camps. The one rebukes me for having idealized the psychoanalytic process. They say that I have ignored the incrustation of dogma, authority, circular reasoning, and self-fulfilling predictions which mark the psychoanalytic school. There are others who will say that this reduction of the psychoanalytic process is childishly naive, has discarded the rich contributions of psychodynamic theory, the values of transference and counter-transference and other important aspects of interpersonal relationships which are inextricably bound to the psychoanalytic process, or that I have stripped and dehumanized "the most insightful contribution to our understanding of human nature in the history of humanity" (31). To whatever extent these allegations are true, I have provoked them deliberately, in order to find an essence in psychoanalytic process which can be accepted by the most critical scientist as a minimum achievement or desideratum.

I must also confess to a little impatience with the recurrent debate on whether Freud was a pretender or an intellectual superman whose theory must, *ipso facto*, form the basis of modern concepts of human behavior; whether his followers are specially anointed with unique insights into understanding the human mind, or a group of benighted, doctrinaire and unscientific partisans. Such *ad hominem* arguments have no place in the forum of science. I prefer to look at Freud with a certain amount of detachment and in the context of his time. Borrowing heavily from the work and opinions of many others (as we all do and should), he elaborated a theory, or more properly a group of theories, and against much opposition promulgated them with such conviction and zeal that it broadened the field of psychiatry and revolutionized the concepts even of his adversaries. The validity of his particular theories is not nearly so important as the cogency of his point of view nor as the probability that he contributed substantially to introducing into the discourse on human behavior the idea of the importance of unconscious elemental drives and experiential factors, and led the movement which was, to a large extent, responsible for adding the information component to the mechanism of be-

havior. He did this at a time when the consensus of thinking was emphasizing the overriding importance of anatomy and pathology, when constitutional factors were thought capable of explaining all aspects of behavior from chorea to criminality.

It is nevertheless true that most of these theories have not yet had the opportunity and advantage of testing and validation by the accepted methods of science. As a gratuitous personal opinion, I doubt whether Freud's theories will eventually turn out to be the most complete or valid explanations of human behavior. If they did it would be a really unprecedented achievement. Galileo invented a telescope, made some observations on free fall, and promulgated his own opinion and that of others that the earth revolved about the sun. Newton found some important generalizations in the simple motion of material objects and derived a mathematical expression for the force of gravity. William Harvey, building upon the work of others, postulated the circulation of the blood. These great human achievements would be surpassed by far if it were true that Freud, on the basis of his own knowledge of anatomy, physiology and the behavioral sciences, or even upon all that was known in his time, could have developed a theory which explained even a significant segment of the fantastic complexity of human behavior. To whatever extent his theories will be substantiated, modified or refuted by scientific evidence which is now beginning to be acquired, his contribution to psychiatry will remain a permanent and substantial one.

Many reasons have been given which purport to explain why psychiatric research, especially that which is designed to test psychodynamic theory, is different from research in other branches of medicine or science, and why the usual rules of scientific evidence cannot be applied to it. I remain unconvinced that psychiatry is a field apart from other areas of scientific discourse. Although I recognize the cogency of many of these arguments, I would prefer to think of them as possible pitfalls or as difficulties, greater in this field than in others, which must be taken into consideration and must somehow be overcome.

There is the strong feeling in some quar-

ters that research and good therapy are incompatible. It is felt that regardless of the validity of the hypotheses or interpretations, it is therapeutically important that the patient believe them implicitly. It is further felt that doubts and skepticism on the part of the therapist which are admittedly the important qualities of the investigator would somehow be communicated to the patient, with a resultant loss in his confidence and in the efficacy of the therapy.

While all of this may be true there is no acceptable evidence for each of the assumptions which it makes. I have heard perfectly plausible psychodynamic explanations of why research is threatening to patients but, interestingly enough, equally convincing psychodynamic explanations of why it is supportive. Since the evaluation of the efficacy of even the major forms of psychotherapy has been so long in coming, I doubt that anyone has had the means or the inclination to test the comparatively trivial question of the effect of skepticism in the therapist. In the long term study of Whitehorn and Betz(32) on the relationships between personality factors of therapists and their therapeutic results in schizophrenia, although many variables have shown a significant relevance, skepticism or conviction have not been among them. To the hypothetical opinion stated above, I should like to offer a counter one. This would be that, just as the "training for uncertainty" is important in the education of other physicians(33), so this feeling of uncertainty and humility is of value to the psychiatrist; that the average patient is sensitive enough to recognize what the psychiatrist can be expected to know and what he cannot. It is possible that confidence is reinforced when the psychiatrist speaks authoritatively from his vast and special experience with observations of other human beings in similar situations and when he makes recommendations based upon them. When in addition he admits that he, and medical science generally, do not know all of the answers to the causes of the problem, it is even possible that this may strengthen the human bond between them. In any case, if we agree that neither one of these two opposing hypotheses has been proven, we can at least make a reasonable prediction of what the

result would be if we assume one or the other to be correct and behave accordingly. If skepticism were repressed, would we not guarantee that progress will stop and present opinion be perpetuated and even reinforced by the uncritical selection of data from the vast supply available? On the other hand, will not the skeptical attitude, on the basis of all our experience in other scientific disciplines, make for revision and improvement and progress?

Another major problem, often a bar to psychiatric research, is the idiosyncratic nature of human personality and therefore presumably of mental illness. There is no doubt at all that human beings differ remarkably one from another, not only in the field of personality, but also in every anatomical and physiological aspect. It is also true that the personality differences are such that the variance which may be introduced in that sphere or in behavior by individuality is magnitudes greater, because of the tremendous leverage in the behavioral field, than the variance which occurs, let us say, in the action of the heart or in the digestive system. Admitting freely that each individual is a phenomenon unique in the universe, there is still the question whether that individuality depends upon a specific arrangement and weighting of a considerably simple alphabet of common factors, or whether the very alphabet is unique to the individual. All the biological and the behavioral sciences are based upon the assumption of common factors of which we all partake in different degrees and combinations. Psychodynamic theory not only accepts but is based upon the existence of these common factors; indeed, I never cease to be impressed with the small number of variables into which that theory in its classical forms has managed to compress so many aspects of human behavior. If the assumption of the importance of common factors is correct, then psychiatry is not qualitatively different from every other field of biology which, recognizing the uniqueness of the individual, nevertheless attempts to study the common factors and how they are combined to produce that individuality. Statistical techniques have been devised, are available and are being used in every other science which permit

one to tease out the variables involved and to weight them appropriately in the resultant, and psychiatry has begun to take advantage of them.

An unfortunate corollary of the recognized idiosyncratic aspects of personality is the rather alarming tendency today to neglect the older concepts of nosology and the description and classification of mental disorders. Diagnosis is undervalued and mental illness is being regarded less as a "disease" or even a "disorder" and more as "a way of life," or an individual adaptation to a unique life situation. If such were the case, of course, it would follow that what was formerly thought to be a categorical disorder is now unique for and peculiar to the individual patient. It would follow, also, that there is little sense in concerning oneself with "schizophrenia" or "anxiety neurosis." One should really speak of John Jones' Disorder or Mary Smith's Syndrome. Here again I fear that we are dealing with a hypothesis which is being given the clothing of a fact. It is easy to see how appropriate and important it was to emphasize the concept of individuality at the time when Adolf Meyer did so, when Kraepelin's nosological categories were generally assumed without evidence to represent diseases with specific and simple etiologies, pathogeneses, predictable prognoses, and

stipulated treatments. It is no longer necessary to accept either assumption; it is quite possible to recognize that phenomenologically at least there are significant clusters in the expression of mental disorder. It seems rather rash to discard the decades of careful clinical description for an unverified hypothetical postulate. Of course it is possible to exaggerate the diffuseness of these categories by concentrating upon the relative minority of patients who seem not to fit neatly into any of them, but in doing so we forget the many who do and their general consistency and reliability.

In Vera Norris' comprehensive study of mental illness in London (34), there was a recent opportunity to re-examine the reliability of some of these classical diagnostic categories, in a study of a large series of patients who were seen and diagnosed in a brief observation at a receiving hospital and in a much longer stay in a mental institution. It should be pointed out that no effort was made to emphasize the importance of diagnosis or to refine the diagnostic techniques since this study was done after the fact and represents the unpremeditated, unimproved reliability of the diagnostic categories as they are employed in London. Table 1 represents a summary of her results, indicating the percentage of concordance in the diagnosis between the 2 institutions for

TABLE 1

Diagnostic Concordance Between Observation Unit and Mental Hospital
(from V. Norris, *Mental Illness in London, 1959*)

| | % concordance | |
|-------------------------------------|---------------|-------|
| | Men | Women |
| Schizophrenia | 74 | 62 |
| Manic Depressive | 63 | 69 |
| Senile psychoses | 61 | 61 |
| Epileptic psychosis | 93 | 88 |
| General paralysis | 90 | 78 |
| Alcoholic psychosis | 79 | 48 |
| Psychoneuroses | 62 | 46 |
| Mental deficiency | 75 | 68 |
| Disorders of character and behavior | 44 | 42 |
| All psychiatric disorders | 62 | 58 |

each of several diagnostic categories. There is a remarkable consistency here, all the more remarkable since most of these diagnoses are made without the advantage of x-rays, blood tests, or other objective and sometimes pathognomonic criteria. I wonder whether a random sample of medical diagnoses generally would yield a significantly higher reliability. It seems unfortunate to close our eyes to these obvious clusters as a reaction to preconceived and unwarranted notions of their significance with regard to etiology, genetics, prognosis or therapy. Where we have no clear idea of etiology or pathogenesis, treatment should and will continue to be based upon the individual interaction between the patient and his life situation. But to discard those common clusters of symptoms is to throw out information and exaggerate chaos.

It has been said, usually by those outside the field, that psychiatry depends too much upon subjective observations ever to become a science. To this I take strong exception. It is not subjectivity itself which keeps a field from being scientific, but a failure to recognize, minimize, or compensate for subjective error. The human senses are notoriously imprecise, variable and fallible, although this ignores the ear of a Toscanini which could recognize a deviation from the correct frequency of 1 part in a thousand. Used properly, however, all that the unaided senses of those of us not so gifted need introduce into the observation is a larger standard error of measurement. The internist of 150 years ago is reputed to have been able to diagnose diabetes mellitus by tasting urine, and even today some research has been done in which the most sensitive instrument which could be found was the nose of expert tasters(35).

But human observation and subjective evaluation is corruptible, infinitely more so than the needle on a spectrophotometer. It is notoriously influenced by the motivation of the observer, the internal or external rewards which come from making a discovery, and from various social pressures. Mouton and his associates(36) have shown that so simple a task as counting the clicks of a metronome can easily be made to yield false results if such are reported by others.

This pressure of subjective bias operates

in two interesting ways. In the first place, it may obviously influence the initial data themselves, certainly when they are subjective but even when they are as objective as the taking of a reading on a calibrated scale. It is a commonplace observation in a laboratory of physics or chemistry that such readings are not entirely independent but are influenced by previous ones, so that the careful physicist makes sure that knowledge of a previous reading is obliterated by a process of randomization in obtaining each new one. Where the observation itself is subjective, however, the problems are greatly increased. The psychopharmacologist has attempted to get around this difficulty by the use of the so-called "double blind technique," in which, if properly used, the chance that the crucial observation will be influenced by knowledge of the hypothesis or of the expected results by either the patient or the observer is minimized. It is relatively easy to do this in drug studies and in other biological observations and all the more lamentable when it is neglected, as it so often is. I have in another context pointed out the deficits in biological research in schizophrenia in this regard (37), but similar or even greater deficits exist in other areas. The double blind design has had practically no application as yet in studies of social and psychodynamic variables, especially at the clinical psychiatric level. The genetic studies in schizophrenia have not taken every precaution to prevent the hypotheses being tested from contaminating the data being recorded, while in the growing field of the possible influence of family factors on the genesis of schizophrenia few of the studies have taken this problem into account.

John Clausen in his excellent review of *The Sociology of Mental Illness* points out some of these influences(38) :

These theories have been derived from studies of schizophrenics and their families after they have accommodated themselves, in one way or another, to the fact of illness. The processes observed in the families of schizophrenics under treatment may be resultants of the families' experiences with the illness rather than factors of etiological significance. In some instances, indeed, it appears that the conditions under which the families are studied may

themselves accentuate the relational tendencies to which attention is being called. The test of these theories requires work with normal families from a variety of backgrounds, in a variety of observational settings.

Even after that is done it will be necessary that the observer who is evaluating the family setting be kept free of bias regarding the presence or absence of a schizophrenic member. Of course to do truly double blind, well controlled research in these fields would be a Herculean task; most of the past and current investigation is still in the stage of pilot studies in which hypotheses are being generated rather than tested. One hopes, however, that before these hypotheses are accepted by the investigators or by psychiatry generally the problems inherent in performing such a study will have been worked out.

Most scientists in every discipline are aware of this common source of error and attempt sooner or later in the development of their study to prevent it by appropriate research design. A more subtle type of subjective bias which is not as generally recognized is the conscious or unconscious selection which is interposed between the taking and reporting of an observation. There is a universal and perfectly human tendency to accept uncritically those observations which support one's preconceived or hoped-for notions, and to examine much more critically and reject for what apparently is good cause the observations which tend to discredit them. Hardly ever are the conditions under which an observation is made completely perfect, in most types of research with which I am familiar. There are always factors such as temperature deviations, changes in atmospheric pressure, in pH, in the reagents, in the subject, or in the observer, in every observation that has ever been made. It is an easy matter, therefore, to find valid and convincing evidence for the rejection of observations that one does not like. This, I suggest, has been a major source of confusion and error in the scientific literature.

This failing is not peculiar to psychiatry or even to biology. We all secretly envy the physicist who deals with such beautifully precise and objective instruments and such

simple and immutable phenomena. Figure 2 is a chart of the measurements of the velocity of light which have been made throughout the world in the past 30 years (39). I have deliberately broken the ordinate in order to exaggerate the errors involved and to make them less humiliating to biological and behavioral scientists. Although the magnitude of errors is perhaps 10,000 times less than the errors with which we deal, their effect upon the measurement and the reasons behind them appear not to be materially different. We note that over the 30 years in which these particular measurements have been made there does not appear to be a random scatter of the results which we would expect through the operation of experimental error. Rather there seems to be a clustering of the results, for which one can offer some hypotheses. The first result is one which was made by Michelson in 1926 and was somewhat lower than the value accepted until that time, based upon a considerable number of older measurements. Michelson was in the midst of making a second series of measurements some years later but unfortunately died before they were completed. His associates published the results posthumously; these results are also shown, significantly lower than the previous ones. Now, interestingly enough, the next several measurements by independent workers in other laboratories seem to cluster about that one. After the Second World War radar was used in the development of a novel technique for measuring the velocity of light which seemed to have certain advantages and which gave a value significantly higher than those of the previous series. This observation was followed by a rash of others, some made by the same techniques which had been used previously, but somehow agreeing more with the new value than the older one.

Now even in the measurement of light velocity all the observations are not given equal weight. Rather it is the tradition to reject certain data on the basis of atmospheric or instrumental vicissitudes, although the number of rejected observations is reported. It is my hunch that in this selection process there is an unconscious bias in the direction of conformity with preconceived notions and accepted values. This hunch

finds support in the opinion of an authority like Professor Bearden, who discussed this question in the *American Journal of Physics* (40). After considering and arguing against pure chance and systematic error, he suggests "that the experiments were not really independent but that there was a subconscious psychological factor which tended to make each experimenter look for errors in technique until he could check the then accepted value. It appears that (this assumption) is the most plausible." Mulligan and McDonald have also discussed this point.⁸

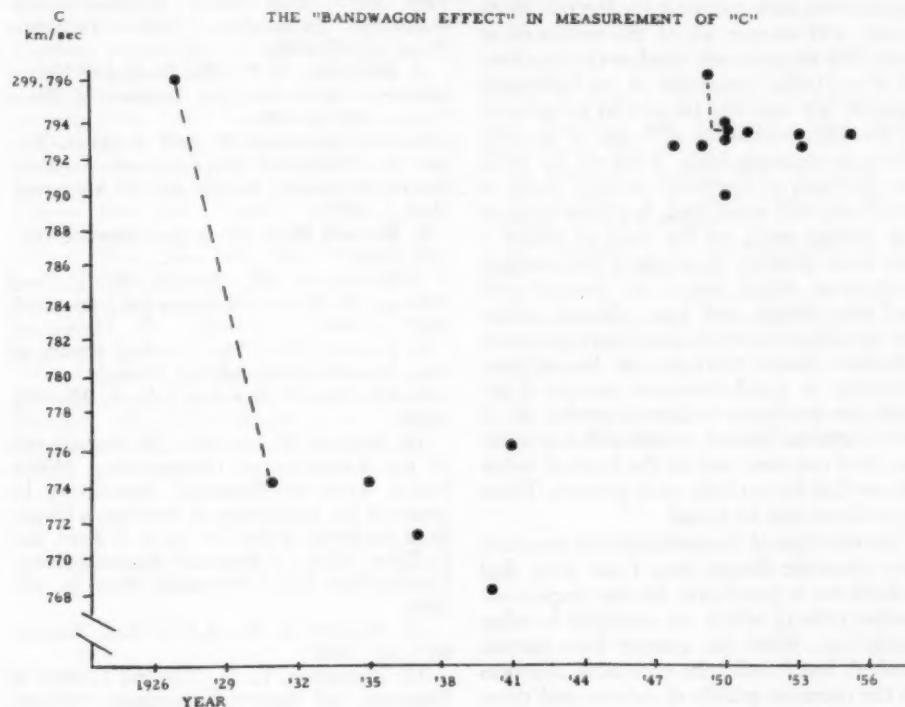
⁸ "It does seem clear from the history of physics that occasionally the result of a very high precision measurement of a physical constant by someone eminent in the field has intimidated other workers from publishing results in substantial disagreement with this value . . . As early as 1947 Aslakson found that his 'Shoran' distance measurements required a value of c higher by more than 15 km per sec than the then accepted value. He did not

If the importance of these subconscious psychological and social errors is recognized by physicists, should not psychiatrists be even more aware of them and attempt to avoid them, or at least recognize and compensate for them in their thinking and writing?

In other branches of medicine, the autopsy(42), the x-ray and the chemical

report his results at that time, however, because he thought there must be some as yet undetected error in his work or in the accepted value of the index of refraction at the frequency used which would account for the discrepancy. It was only in 1949, when evidence was mounting from other sources in favor of a higher value of c that Aslakson first published his original evaluation, $c=299,792.4$ km per sec. It seems at least possible that other experimenters in the years from 1934 to 1949 may have found higher values of speed by optical methods but refrained from publishing their results because of their disagreement with the determinations of (others) in which such great confidence was placed at that time"(41).

FIGURE 2
Measurement of the Velocity of Light as Reported in
the Physical Literature from 1926 to 1956



laboratory have served as checks to the reinforcing of clinical presumption of underlying processes by selective observational bias. Such relatively objective and dispassionate guidelines are lacking in psychiatry and it is that lack rather than ineptitude or indolence which has kept psychiatry a young science, comparable to medicine a generation ago.

The idiosyncratic aspects of human personality and behavior plus the lack of objective criteria for the evaluation of progress, have undoubtedly inhibited the motivation and de-emphasized the obligation to test the efficacy of various forms of psychotherapy. They have also formed the basis for a devaluation of the few studies which have attempted to do so. Recognizing that the efficacy of a therapeutic procedure is not a valid test of the theory upon which it is based, Frank has pointed out the need for empirical evaluation of the relative efficacies, by the criteria which we have, among different forms of therapy administered by various therapists to a wide variety of patients(43). We are asking too much if we seek and wait for the one study which will answer all of the questions at once. No surgeon can predict the outcome of a particular operation in an individual patient, nor can one be certain in advance of the effectiveness of each use of an antibiotic or ataractic drug. What we do have, on the basis of empirical studies, some of which are well controlled, is a knowledge of the betting odds, on the basis of which it has been possible to improve the surgical techniques which we have, develop and test new drugs, and more sharply define the conditions in which each therapy is most effective. Every therapist, be he surgeon, internist, or psychotherapist accepts a patient for treatment without knowing all of the individual factors which will determine the final outcome, but on the basis of hypotheses that he can help such patients. Those hypotheses can be tested.

Recognition of the problems and imaginative scientific design can, I am sure, find substitutes in psychiatry for the simpler objective criteria which are available to other disciplines. Much has already been accomplished, but it will take continued alertness to the common pitfalls of science and those

peculiar to psychiatry, a wealth of ingenuity and a vast expenditure of time and effort to meet the challenge effectively. It will also require patience and forbearance if we are to avoid the reactive swings which have marked psychiatric thinking in the past. For we must also realize that research and scientific methodology are developing to enrich psychiatry and not to impoverish it of its other qualities. No sophistication of scientific design can take the place of the imaginative and creative spirit, no amount of research output can substitute for a sensitivity to human problems and a willingness to utilize appropriately the knowledge which we have, at every stage of our progress, in service to the individual human being and his community.

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THE CHILD WHO REFUSES TO ATTEND SCHOOL¹

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This paper will discuss a syndrome that is appearing with increasing frequency(4) in psychiatric clinics for children. The principle presenting symptom is the reluctance and ultimate refusal of the child to attend school.

THE SYNDROME

The failure to attend school in such cases can be differentiated from truancy in 3 particulars : 1. Unlike the truant, the school-refusing child goes home and stays home or nearby. He does not go fishing or to the ballgame. 2. The absence of the truant tends to be intermittent and for short intervals of a day or so, whereas, the school-refusing child absents himself for days, weeks, or even months at a time. 3. The truant is absent without the knowledge of his parents. The essence of school-refusal is that while the parents are painfully aware of the absence of the child they are powerless to enforce his attendance.

In the beginning, the child may not directly refuse to attend school. More frequently somatic complaints such as abdominal pain or nausea, headaches or dizzy spells raise a question in the parents' minds about the advisability of sending the child to school. These physical complaints tend to recede quickly if the child is permitted to remain home but they are frequently aggravated if the child is taken to school. While these symptoms may have somatic roots in that they are sometimes vegetative concomitants of anxiety feelings, it is doubtful however if they should be accorded the dynamic status of conversion reaction.

If the parent attempts to force the child to attend school, the "refusal" aspect of the nonattendance becomes more evident. The child will often become anxious, make protestations of pain and fear. If the parent is insistent he may go on to angry accusations, even blows. Once the parent capitulates and allows the child to remain home,

relative peace is rapidly restored.

The core symptom, then, is a failure to attend school, with the knowledge of the parent but beyond his control.

DIAGNOSTIC CATEGORIES

In the literature this symptom has sometimes been described as a single entity and accorded the name "school phobia." Recent articles(3, 12, 16) show that the symptom appears in a variety of psychopathological configurations. There are 3 main categories so described. While the focus of this paper will be upon the acute or neurotic syndrome, for clarity, the other categories will be described briefly.

Acute School Refusal : The sudden appearance of reluctance and refusal to attend school constitutes the principle symptom. These children are usually pre-pubertal and most frequently from grades 4 down to, and including, kindergarten. This syndrome will be described in more detail later.

Characterological School Refusal : While reluctance and ultimate refusal is a prominent symptom in characterological cases, it does not occupy as central a position in the psychopathology. Social difficulties with peers, affective disturbances and acting out behavior of a mild or predelinquent kind are not infrequently part of the picture. Indeed, in the author's experience, an active peptic ulcer complicated one such case in a 14-year-old boy. School refusal may be accorded undue emphasis in the symptom complex because it is most frequently this difficulty that brings the child to the attention of agencies, psychiatrist, or authorities. This category of school refusal is more common in children of early adolescent years, and most authors feel that it represents a more severe personality disturbance in the child than does acute school refusal ; parental psychopathology appears to be of greater magnitude in such cases. Here one is not describing acute school refusal cases that have been permitted to go on to chronic nonattendance. The deterior-

¹ Read at the N. Pacific Society of Neurol. and Psychiat. meeting, Apr. 8, 1961.

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ration of such children shows a rather different picture than that of the characterological school refusing child.

School Refusal as Incipient Psychosis: The least frequently seen category is that which heralds the onset of a psychotic illness in an adolescent child. In the author's experience, the refusal to attend school in these cases, has been explicable on the basis of the first appearance of psychotic manifestations in the classroom. Experiencing frightening hallucinations or delusions in that setting, the child avoids attending.

THE ACUTE SCHOOL REFUSAL SYNDROME

It is proposed to describe more fully the acute pattern of school refusal as a basis for discussion of the dynamics, treatment and prognosis of this particular condition. In addition to refusal to attend school, such children frequently show disturbances of affect, behavior and self concept. Affective disturbances are revealed in the history as well as in the presenting picture. Parents report that such children have often had many fears during early development, i.e., fear of dogs, the dark, thunder, lightning, etc. Indeed some authors have felt(4) that a proneness to anxious affect exists in these children.

Much has been made of the child's fear of school. It is the author's experience that there is question as to whether these children are actually afraid of school, *per se*. It may be that principals and teachers, apprehensive over the role of the school in initiating the child's difficulties may suggest to the child that he might be fearful of one or another aspect of his school experience; parents, seeking to extenuate the child's failure to measure up to social expectations may also suggest that he is afraid of school; therapists, seeking to confirm dynamic formulations may induce such children to produce the expected confession of fear of school. While children may report a fear of school and even focus upon a particular teacher, child or classroom, such frequently seems to be more of an after-thought, than a true phobic anxiety.

A more clearly observed anxiety centers around the child's need to be near his mother constantly. When these children are not attending school their concern over

separation from mother is so great that they often need to keep her within sight, if not touch. One mother reported her child followed her about the house constantly, even sitting with his back to the bathroom door when she used that facility.

The most constant anxiety fantasy reported by these children is of accident or injury occurring to their mothers while they are absent. It may be that the anxiety observed in the classroom is related to pervasive obsessional thoughts of injury or accident having occurred to the parent while the child is at school. Some children report such obsessional thoughts. The desire to remain at home may be motivated by their need to be assured of the well being of their parent. Their personality structure is such that they may also feel that their presence with the parent will confer a magical protectiveness.

One of the most striking observations is of the child's need and ability to manipulate and control his parent through mobilizing and exploiting her guilt feelings, self doubt and subservience. Tears and tantrums would seem to be more in the service of maintaining such control than representative of depressive affect or hypomanic behavior(1).

In some cases the extent to which the child controls the family is remarkable. Not only does the child decide when and whether he will attend school, but meal and bedtime as well as many other aspects of family living may be subject to his decision or, at least, veto. The social and personal life of his parents and siblings may be subject to his tyrannical control. These children are particularly sensitive to the doubts and uncertainties of their mother and exploit these feelings to retain their control. When parental compliance is not forthcoming, tears, tantrums and, in some cases, threats to kill themselves and the parent ensue.³ These children are filled with hostility. While this affect sometimes erupts in the threats described, it is more generally passively expressed. Manipulation and control of the family gains its impetus from this

³ Tyrannical over-control of the family by the child is sometimes seen in children who have no difficulty in attending school regularly. The reason for this is not clear.

hostility. The anxiety over accident or injury to the parent is probably a conversion of such feelings.

It should be mentioned that most of these children are bright, frequently good students, sometimes careful and almost ob-sessional workers. Outside of their homes, they are reported to be mannerly, polite, sometimes excessively conforming. They are alert to the feelings of others. They are extremely perceptive of the clues that enable them to detect the concerns and attitudes of others. While they tend to use this knowledge to further their manipulative ends, their possession of this skill is probably related to the protracted closeness of their early relationship with mother.

Almost all authors agree that a highly specific type of pathological relationship between the mother and the child is usually present. On rare occasions, it is the father who is involved in this particular relationship distortion. The mother is anxiously overinvolved with her child. She tends to overprotect and infantilize him, to have little recognition of his growing capacity for living. Her anxiety as to whether her child can live up to life's expectancies is communicated to the child. She is unable to offer him the limits and expectations that will lead to experiences of mastery and so develop in him a sense of competence and worth. His continued dependence, indeed regression, is thus encouraged.

The mother soon develops a sense of incompetence as a parent which frequently aggravates a basically impaired sense of her own worth. Anxious and hostile feelings develop and a deep ambivalence towards the child is common. While the mother's hostility may erupt on occasion into overt rejection and expressed hatred, it will soon be buried again in guilty overprotectiveness.

Authors disagree as to the reason these mothers become overinvolved with their children. Some see them as immature even infantile persons who have experienced serious difficulty in achieving a sense of independence and autonomy in the course of their own psychological maturation. Others point to the unrewarding quality of the marital life of these women. Their husbands certainly tend to absent themselves

from the situation, to be weakly incapable and to relate themselves superficially to their wives and children. It is postulated that the mother's desire to escape from this unrewarding life situation represents the abandonment of her child and so produces a reaction of guilty indulgence.

It seems likely that in certain cases the above factors are important, however, it may be that the overinvolvement of a mother and her child does not always reflect deeply rooted psychopathology in the mother. Many young mothers today are in the position where they must rear their children with little or no support from experienced relatives. This may well render them subject to increased stress over dealing with their child's growing needs. The popularization of negative psychiatric clichés may have contributed significantly to parental inhibition over controlling their child directly. Fearful of traumatizing her child and deprived of experienced advice it is possible that mother may slip into indulgent management. Where such factors are operant the capacity of the parent to respond to psychiatric assistance is understandably greater than in those cases where severe conflict over unresolved dependency needs have produced mother's overidentification with the child.

DYNAMICS OF THE SYNDROME

Several authors have suggested that the term "school phobia" is misleading(4, 5, 12). However, this formulation continues to appear in the literature. It is suggested that anxiety over separation from the mother is displaced onto the school and thus delimited, becoming a fear and phobic avoidance of school. Since these children do not always express a marked fear of school, it is questionable that such a displacement has taken place. Further, their separation anxiety continues unabated. The economic gain to the psyche of a phobia is that by delimiting the anxiety to a specific situation which can then be avoided, the individual gains a greater freedom of function. These children however continue to be bound tightly to their mothers and it seems doubtful that phobic delimitation of anxiety has really occurred. The dynamics of phobia

seem to be questionably applicable to this syndrome.

The use of the term "school phobia" has been dignified by time and were it not for certain psychological consequences of its use, it would be carping to quarrel with such usage. It seems probable that the hesitance of some therapists to insist upon early return of the child is based upon an understanding of the syndrome as a phobia. Feeling the child's nonattendance to be prompted by intense phobic anxiety, such therapists are fearful of precipitating panic attacks by insisting upon return. Similarly the attention of school persons tends to be focused upon the anxiety of the child. This leads them to look for fault in their teachers or program and to protect the child by concessions ranging from limited classroom expectation to home tutoring. In the latter case, the child is denied the opportunity to recover and in the former he is robbed of desperately needed experiences of mastery. Finally, the term phobia focuses upon the anxiety of the child and neglects that most striking aspect of this syndrome, the manipulative and controlling quality of the child's relatedness to his parents. The term "refusal" would seem to be more appropriately descriptive of the situation of the child's nonattendance.

The principle conflict for these children centers about their struggle to achieve a sense of autonomy, to delimit their own egos, to find their own identity and sense of worth. To this end the child behaves as a tyrant, he operates from a self concept pervaded by infantile omnipotent fantasies. He rules his parent, who sustains these fantasies through protective indulgence. Her mounting resentment eventually erupts into expressions of anger or rejection. In turn the child reacts with hostility which, with magical power born of omnipotence has life threatening dimensions towards his parents. Acute anxiety over separation is precipitated. The child reacts with ingratiating conformity and tearful clinging and the parent is ready to make it up to the child for her recent explosion of hatred. Mutually supportive fusion results and further regression is encouraged. The child reasserts his tyrannical rule over the home and refuses to attend school.

It would seem that the stage is set for this type of relationship by a failure of the child to have his needs met in early stages of his growth. As the infant's growing capacity for self care emerges, his life experiences offer him opportunities to exercise his new capacities. He learns to feed himself, to dress himself, to tie his own shoe laces, to wait a little for his satisfactions. Some children seem to reach actively for such experiences of mastery and growth. Some babies reject their bottles. Some children will not allow their mothers to button their clothes. For some other children however, each new responsibility is greeted as though it were an unwelcome irritation. The parents of such children must be patient and determined if the child is to achieve this step in his growth.

It may be that such differences in children are a reflection of constitutionally determined approaches to experience; it may be that such differences are solely the result of the nature and quality of parental management offered the child. It may be that both factors are operant with varying significance in individual children.

In any case, experiences of mastery enable the child to develop a sense of himself as an autonomous individual. With each new expectancy encountered and mastered, the child achieves a growing sense of his personal worth. Gradually, he exchanges the omnipotent fantasies so essential to his security as an infant for a view of himself as a separate individual, albeit less than totally self determining, yet with capacity and worth.

Denied limits and expectancies to grow against children are infantilized. Their omnipotent fantasies persist; their personal autonomy is stunted in its development. When life requires them to leave the protection of home to attend school, they are forced to view themselves comparatively for the first time. Their fragile sense of worth may not sustain the comparison, and a tendency to regress to more infantile modes of behavior results.

TREATMENT

To be effective treatment must be instituted promptly and must include early return to regular school attendance. Follow

up studies have shown a clear relationship between the effectiveness of treatment and the promptness of its initiation(12, 16). These children cannot be allowed to languish on waiting lists; their condition should be regarded as an emergency.

The first phases of treatment are concerned with the child's early return to school. Some authors express concern over action preceding insight and are concerned that panic states not be precipitated. Most writers however feel that prompt and vigorous action to return the child to school is indicated. In order to achieve this goal it is necessary to deal directly with the concerns of the parents, the child and the involved school persons.

The parents should be informed that the child's problem is not school and that his interests are not served by his nonattendance. The difficulty they experience in knowing how to deal with the child's behavior is acknowledged and accepted as a product of their desire to help the child. It is pointed out, however, that their present measures are currently ineffective. A date a few days hence is set for the child's return. It is sometimes helpful to involve the father in the mechanics of conveying the child to school. The difficulties of the first few days can be dealt with more effectively if the parents are told that they may call the therapist in the mornings if difficulties develop. Plans for ongoing treatment involving mother and child are made. The parents' questions are answered and their anxieties handled with firm support.

The child is informed that the therapist realizes that he has a worrisome problem but also that this problem is not at school. It is pointed out to him that nonattendance has not solved his problem nor has it made him happy. Return to school is defined as his obligation and attendance as not a matter of his particular choice. He is informed of the plan to begin attending on the arranged date and also that he will be seeing the doctor regularly. He is told that the purpose of seeing the doctor is to discuss any concerns he might have about his return or other problems. From the childrens' demeanor it is frequently apparent that they are suspending judgment as to whether or

not this is the way events will actually proceed.

The principal is contacted and informed of the plan to return the child. His concern that the school may have done something to contribute to the child's fears is dealt with by a brief explanation of the state of affairs. The principal is discouraged from making any special concessions for the child's educational program and told that such would not be in the child's interests. He is encouraged to use the nurse's office rather than permit the child to go home should physical complaints develop.

Using such methods, it is the author's experience that acute school refusing children are usually attending regularly and without difficulty within 2 weeks. In a few cases, the child returns immediately without protest on the date assigned. It is as though the child recognizes the new determination of his parents and elects to return without protest. In the usual case however, the child struggles against returning with somatic complaints, tears and tantrums. Not infrequently the parents telephone for reassurance and instructions and the therapist can help them to convey the child to school by direct advice. For example, one girl refused to put on her skirt; her father was instructed to place the girl and her skirt in the back seat of the car and was assured that she would put it on when she arrived at school. She did. Many children leave school during recess or lunch period to go home. They should be returned the same day. Usually, progressively diminishing difficulties persist through the first 3 or 4 days of the first week and sometimes 1 or 2 days of the second week. Panic reactions do not occur nor do other phobias develop.

The experience of attending regularly represents a shift in the adjustment of the child. For example, one such child was returned with difficulties lasting for 2 weeks. He had been in school slightly over a week when he contracted a communicable disease and was excluded. It was of course feared that it would be necessary to repeat the full process, however, the child returned willingly after he was well.

Continuing treatment involves parent and child. With the mother a directly supportive

relationship is provided. She is given the opportunity to ventilate some of her feelings for her child, her marriage and her self doubts as a mother. She is encouraged to discuss the details of the child's home management. She is supported in setting limits around such matters as bed and mealtime if these are out of her control. She is encouraged to offer the child increasing expectations in specific areas. It is necessary to enquire further concerning such expectations for not infrequently the child may have bargained so effectively as to nullify the mother's control.

If the mother receives clearly enunciated and firmly reinforced recommendations from the therapist, she tends to begin dealing with the child with similar clarity and firmness. Mothers will frequently come to recognize that they have been oversensitive to the emotional reactions of the child, that in actuality the depth of feeling imputed to the child was somewhat greater than he was truly experiencing. Further they come to recognize that the child can cope with some distress, disappointment, sadness, or fear without being overwhelmed.

As the child and mother achieve some initial separation, their relatedness to one another tends to improve and generally continues to do so somewhat independent of events in therapy. The child is initially guarded and tries to control the therapist as he has done his parent. When he recognizes that he is unable to do this and that the therapist is behind the new self respect of his parents, he may attempt to undermine treatment by mobilizing the parents anxiety concerning it. Ultimately however these children give up their manipulative behavior and develop more meaningful relationships to the therapist.

Some authors have expressed concern that direct supportive involvement with the mother would tend to perpetuate her dependency upon the therapist. This does not seem to be the case. Rather, the setting of limits helps her to achieve a greater personal autonomy. If the therapist is alert to her increasing capacity to take over decision making and allows her to do so, her independent functioning is encouraged.

Termination of treatment tends to occur as a result of pressures from the parent.

When their relationship with the child has improved with the disappearance of tears, tantrums and tyranny and the child is attending school regularly, they see less need for treatment.

PROGNOSIS

The prognosis is related to the nature of the psychopathology in a given case and the real meaning of the therapeutic interference that has taken place.

Follow up studies in acute cases are encouraging in that the same or other adjustment difficulties are rarely found (12, 18). Symptom displacement does not seem to occur. This would tend to lend credence to the view that acute school refusal may represent more of a situational reaction than a structured neurotic illness. The relationship difficulties of the parent and child might more profitably be viewed then as an impasse or blind alley in the child's psychological maturation. Treatment restores the mother and child to a more normal parent-child interaction and normal emotional growth is once again possible for the child.

As long as the child remains out of school normal psychological maturation is impossible. He can only stand still or regress. In those children who have been out of school, for a year or more, severe regression tends to crystallize in an infantile personality structure, social alienation and even paranoid traits. For such children separation from their home and a period of residential treatment is often necessary. The price of failure to treat these children promptly is very high.

SUMMARY

School refusal would seem to be a symptom complex appearing in more than one psychological configuration. In its acute form, it is felt to arise out of difficulties that the child has experienced in achieving a sense of autonomy. This has been due primarily to fluctuant limit setting by over involved parents. Direct management of the situation to control the symptom is essential to restore the child to normal growth patterns. Since symptom displacement and recurrence are not common it is suggested that the symptom in its acute form is more

situational in character than indicative of a structured neurotic illness.

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INQUIRY INTO THE USE OF PSYCHOTHERAPY FOR HOSPITALIZED SCHIZOPHRENICS¹

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There is ample reference in the literature to the treatment of schizophrenic patients with the psychotherapeutic method, and, in clinical presentations and discussions, psychotherapy is frequently mentioned as indicated or highly desirable. Despite this, there is difficulty in ascertaining the status of this method in the treatment of schizophrenic patients, both as to the frequency of its use and the current consensus towards its effectiveness. Occasional authors have reported their individual or group experiences but statistics have not become available which would reflect the picture on a nationwide basis.

This inquiry which is herein reported pertains to a beginning attempt to define the status of the use of psychotherapy with schizophrenic patients by collecting data regarding one segment of the problem. In addition, it was presumed that the data might provide correlation between the extent of its use and other factors such as the number of professional personnel, the number of staff personnel with special or particular skills and their attitudes towards other therapeutic tools. To this end a plan was devised to study, from reports obtained from a representative list of hospitals, the use of psychotherapy with hospitalized schizophrenics. These hospitals were derived from listings provided by The Joint Information Service of the APA, The National Institute of Mental Health, The APA Mental Hospital Service and The Council of State Governments. All private, general hospitals in the United States which admitted 100 or more neuro-psychiatric patients per year were included.

Hopefully, the judgements of effectiveness to be collected from the various hospitals would be based upon results obtained by their therapists who had had specific

experience in the use of psychotherapy with hospitalized schizophrenic patients and in a setting where judgements regarding use of other methods would also be available. It could be anticipated that these judgements would not always be derived from well-organized evaluation studies of psychotherapy since few of these exist, but rather would include judgements based upon general impressions from experiences within their own hospitals.

A questionnaire was designed to secure the following specific information³: 1. Data concerning hospital census, number of schizophrenic patients, staffing patterns and the extent to which various psychotherapeutic methods were used; 2. An expression of opinion as to the effectiveness of psychotherapy based upon the experience of each hospital (in detailed percentages and figures when available; when not, in general terms); 3. A definition by each source of the criteria used for determining changes occurring with psychotherapy; 4. An expression of opinion as to the effectiveness of psychotherapy compared with other treatment methods; 5. The extent of inservice training in the various psychiatric disciplines; 6. Proportion of staff with special training; e.g., personal analysis, psychotherapy under supervision, etc.

DESCRIPTION OF SAMPLE

Eight hundred and twenty-four questionnaires (and a follow-up inquiry to some) were mailed to State, Veterans Administration, Private Psychiatric and Private General Hospitals during the Summer-Fall 1959. Ninety-four percent of the V. A. Hospitals and 73% of the State Hospitals responded. For the final sample, it was necessary to delete 270 hospitals who responded with insufficient data; many of the private and city hospitals that responded were unable to provide the information requested but since these hospitals account for but 4% of the total hospitalized schizophrenic census, the final sample (Table 1) appears to be

¹ The author wishes to acknowledge the assistance of Drs. Nyla Cole, William Conte, David Impastato, Henriette Klein, William Orr and Theodore Rothman.

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³ For the period of July 1, 1957 to July 1, 1958.

significant in describing the use of psychotherapy for hospitalized schizophrenic pa-

TABLE 1
Rate of Response by Type of Institution

| TYPE OF HOSPITAL | NUMBER OF QUESTIONNAIRES SENT | RECEIVED | % RESPONDING |
|---------------------|-------------------------------|----------|--------------|
| V. A. | 31 | 29 | 94 |
| State | 180 | 132 | 73 |
| Private General | 161 | 87 | 54 |
| Private Psychiatric | 158 | 54 | 36 |
| County | 24 | 7 | 29 |
| TOTAL | 554 | 309 | 56 |

tients. All but three states contributed data to the survey (Table 2). This nationwide response minimizes the possibility of regional bias influencing the final sample judgements.

From the pooled data, certain trends could be charted: 1. The proportion of hospitalized schizophrenics being treated with some form of psychotherapy; 2. Attitudes regarding effectiveness of this therapeutic tool; 3. Judgements regarding its

effectiveness as compared with other types of therapy; 4. Available psychiatric personnel (with and without special training) to administer psychotherapy; 5. Correlation between the extent of the use of psychotherapy and the extent of training of the staff; 6. The availability of psychotherapists other than physicians (ancillary personnel).

ESTIMATION OF EFFICACY

Most of the respondents made a definite commitment as to their opinion of the efficacy of psychotherapy in treating schizophrenics. In those instances where specific figures were provided, if half or more of the patients treated were said to be benefited, the respondent was considered to have a favorable opinion of its efficacy, and vice versa.

A wide variety of opinions were expressed. Within this range, 43% had a favorable opinion of psychotherapy in the treatment of schizophrenics; the remaining 57% decline making a value judgement or considered its efficacy unfavorable. Among those who had a favorable opinion, many made

TABLE 2
Response (By States)

| STATE | NUMBER OF QUESTIONNAIRES SENT | RECEIVED | STATE | NUMBER OF QUESTIONNAIRES SENT | RECEIVED |
|---------------|-------------------------------|----------|--------------|-------------------------------|----------|
| Alabama | 4 | 2 | Montana | 2 | 0 |
| Arizona | 1 | 1 | Nebraska | 4 | 2 |
| Arkansas | 4 | 2 | Nevada | 1 | 0 |
| California | 71 | 31 | New Jersey | 18 | 9 |
| Canada | 21 | 14 | New Mexico | 2 | 2 |
| Colorado | 9 | 2 | New York | 34 | 27 |
| Connecticut | 11 | 6 | No. Carolina | 10 | 5 |
| Delaware | 3 | 2 | No. Dakota | 2 | 1 |
| D. C. | 1 | 1 | Ohio | 27 | 16 |
| Florida | 12 | 5 | Oklahoma | 5 | 3 |
| Georgia | 6 | 3 | Oregon | 3 | 2 |
| Hawaii | 2 | 1 | Pennsylvania | 32 | 18 |
| Idaho | 1 | 1 | Puerto Rico | 2 | 2 |
| Illinois | 33 | 16 | Rhode Island | 1 | 1 |
| Indiana | 10 | 8 | So. Carolina | 2 | 2 |
| Iowa | 12 | 11 | So. Dakota | 2 | 1 |
| Kansas | 4 | 4 | Tennessee | 11 | 4 |
| Kentucky | 6 | 2 | Texas | 22 | 9 |
| Louisiana | 8 | 5 | Utah | 3 | 1 |
| Maine | 4 | 3 | Vermont | 3 | 3 |
| Maryland | 15 | 11 | Virginia | 6 | 4 |
| Massachusetts | 21 | 13 | Washington | 7 | 3 |
| Michigan | 21 | 11 | W. Virginia | 7 | 3 |
| Minnesota | 17 | 11 | Wisconsin | 35 | 15 |
| Mississippi | 5 | 2 | Wyoming | 1 | 1 |
| Missouri | 11 | 8 | | | |

TABLE 3
Compilation of Data

| | STATE | V. A. | TYPE OF FACILITY | PRIV. PSYCH. | PRIV. GEN. | TOTAL |
|--------------------------------------|---------|--------|------------------|-----------------|---------------|-------|
| Total Patient Census | 284,845 | 37,089 | 5,857 | 227,710* | 555,501* | |
| Total Schizophrenic Census | 124,738 | 26,682 | 1,568 | 4,546 | 157,534 | |
| % of Total Census | 44% | 72% | 27% | 2% | 28% | |
| % Schiz. Receiving Psychotherapy | 23% | 43% | 100% | 97% | 29% | |
| Individual Psychotherapy | 9% | 15% | 91% | 66% | 13% | |
| Group Psychotherapy | 12% | 27% | 34% | 21% | 15% | |
| Hypnotherapy | 0 | 0 | 0 | 2% | 0 | |
| Psychoanalytic Therapy | 0 | 0 | 10% | 3% | 0 | |
| Schiz. Pts. Per Physician | 57 | 51 | 4+ | 3 | 43 | |
| % Physicians Certified** | 36% | 45% | 40% | 65% | 47% | |
| % Physicians with Sp. Training*** | 11% | 6% | 29% | 16% | 13% | |
| Schiz. Pts. Per Psychologist | 248 | 133 | 40 | 55 | 180 | |
| % Psychologists with Sp. Training*** | 54% | 75% | 49% | 45% | 54% | |
| Av. Numb. Soc. Work. Per Hospital | 8 | 9 | 1 | 1 | 6 | |
| % Soc. Work Giving Psychotherapy | 25% | 37% | 31% | 26% | 28% | |
| In-Service Training Programs : | | | | | | |
| Aides | 91% | 100% | 55% | 67% | 82% | |
| Nurses | 76% | 96% | 52% | 70% | 77% | |
| Adjunctive Therapists | 59% | 93% | 21% | 21% | 49% | |
| Social Workers | 65% | 96% | 10% | 14% | 50% | |
| Psychologists | 61% | 100% | 10% | 19% | 49% | |
| Volunteers | 68% | 100% | 21% | 39% | 59% | |
| Pastoral Students | 34% | 21% | 3% | 23% | 44% | |
| Psychiatric Residence | 63% | 46% | 31% | 30% | 49% | |

* Including Non-Psychiatric Patients.

** Or Board Eligible.

*** Training in Psychotherapy.

the reservation that their opinion was favorable only if the patient received some form of somatic therapy first or concurrently. Some respondents expressed favorable opinion of the usefulness of psychotherapy in the earlier phase of schizophrenic decompensation and considered it without value in the chronic, later phases. Others felt that psychotherapy had a contribution to make but was inadequate by itself. Others utilized psychotherapy in conjunction with other methods and were reluctant to make a value judgement of its singular use.

The majority of the V. A. and State Hospitals indicated that they did not view psychotherapeutic treatment of schizophrenia as effective. There was no reference to a lack of personnel to explain the meager degree to which it was used. The private, general hospitals responded more dogmatically, specifying that psychotherapy was not a satisfactory substitute for somatic therapy. The private, psychiatric hospitals (where 100% of the schizophrenics were reported as receiving some form of psycho-

therapy) had as many reservations about its efficacy for hospitalized schizophrenic patients as did the other hospitals.

CRITERIA FOR IMPROVEMENT

The majority of the reporting hospitals used essentially the same criteria for determining improvement, the most common being : 1. Separation of patient from the hospital ; 2. Evidence of increasing socialization ; 3. Psychiatric evaluation ; 4. Psychological examinations.

COMPARISON OF PSYCHOTHERAPY WITH OTHER TYPES OF THERAPY

With minor disagreement, the opinions or judgements expressed view psychotherapy as being just as, or more effective than, the common or more easily available therapies such as vocational, recreational, occupational or milieu. Opinion seems to be evenly divided as to its efficacy compared with electroconvulsive and insulin coma therapy. Only in the case of psychopharmacotherapy is there a clear cut preference, this latter

being considered a superior form of treatment (Table 4). The V. A. Hospitals differ

of patients receiving psychotherapy and the extent to which inservice training is pro-

TABLE 4
Psychotherapy Rated Against Other Modalities

| Psychotherapy Just as or More Effective Than: | | TYPE OF FACILITY | | PRIV. GEN. | CONSENSUS |
|---|-------|------------------|-----------------|---------------|-----------|
| MODALITY | STATE | V. A. | PRIV. PSYCH. | | |
| Carbon Dioxide Therapy | 89% | 90% | 100% | 66% | 85% |
| Vocational Therapy | 84% | 79% | 100% | 79% | 84% |
| Recreational Therapy | 82% | 86% | 93% | 67% | 81% |
| Occupational Therapy | 79% | 86% | 93% | 59% | 77% |
| Psycho-Surgery | 76% | 67% | 77% | 62% | 72% |
| Milieu Therapy | 72% | 80% | 71% | 62% | 71% |
| Insulin Coma Therapy | 50% | 79% | 56% | 40% | 53% |
| ECT | 50% | 76% | 41% | 37% | 49% |
| Pharmacotherapy | 36% | 32% | 47% | 26% | 34% |

from the consensus in that they view psychotherapy as superior to ECT and insulin coma therapy. The private psychiatric hospitals view psychotherapy as being equally effective as psychopharmacotherapy and the private general hospitals show a preference for ECT and insulin coma therapy.

INSERVICE TRAINING

Inservice training (other than pastoral training and psychiatric residency) is encountered most frequently in the V. A. Hospital system. The two exceptions noted occur most frequently in the state hospital systems. There is considerably less inservice training in the private psychiatric and general hospitals.

First examination of the data suggests an inverse relationship between the percentage

moted. As seen in Table 5, however, the difference in staffing patterns and the greater caseloads of the State and V. A. Hospitals (as compared to the private facilities) seem to account for this discrepancy. Among trained personnel, the reported case loads of 92-169 schizophrenic patients per therapist, in addition to the other commitments, are far from conducive to the development of psychotherapy programs.

PERSONNEL RESOURCES

Staffing patterns appear to be related to the use (and also the acceptance of) psychotherapy. In those hospitals (private psychiatric and general) in which psychotherapy is used extensively, small case loads are noted. Conversely, in the V. A. and State Hospitals, there appear to be fewer trained

TABLE 5
Professional Resources for Psychotherapy

| | TYPE OF FACILITY | | PRIV. GEN. | TOTAL |
|---|------------------|-------|---------------|-------------|
| | STATE | V. A. | | |
| Number of Physicians | 2,183 | 549 | 354 | 1,365 4,451 |
| % Certified | 36% | 45% | 40% | 65% 46% |
| % With Special Training | 11% | 6% | 29% | 16% 13% |
| Number of Psychologists | 503 | 213 | 39 | 83 838 |
| % With Special Training | 54% | 75% | 49% | 45% 57% |
| Number of Social Workers | 936 | 267 | 32 | 81 1,316 |
| % With Special Training | 25% | 37% | 31% | 26% 28% |
| Total Resources* | 3,622 | 1,029 | 425 | 1,529 6,605 |
| % With Special Training | 20% | 28% | 31% | 18% 22% |
| (Ratio) Total Personnel : Schiz. Pts. | 1:34 | 1:26 | 1:4 | 1:3 1:24 |
| (Ratio) Trained Personnel : Schiz. Pts. | 1:169 | 1:92 | 1:12 | 1:16 1:110 |

* Physicians, social workers and psychologists.

personnel to carry out psychotherapy programs.

SUMMARY AND CONCLUSIONS

Questionnaires were sent to hospital administrators who referred them to their clinical directors, chiefs of service or directors of professional services. The data thus obtained represent the judgements of psychiatrists with varying degrees of training, a variety of philosophies of treatment and a variety of types of hospital facilities.

The data which have been collected constitute current judgement values. Those respondents who could not draw on specific experiences within their own hospitals did not offer judgement values. The opinions expressed—though sometimes based on impressions from experience rather than on organized evaluative studies—are essentially from hospitals where therapists have experience with both psychotherapy with schizophrenics and the somatic therapies.

The data in this report are based upon a survey of more than 150,000 hospitalized schizophrenics in more than 300 psychiatric facilities of various types. The bulk of the schizophrenic patients in this sample (79%) are hospitalized in the various state institutions; the V. A. facilities account for an additional 17% and the remaining 4% are hospitalized in the private hospitals.

The percentage of the schizophrenic population receiving psychotherapy is lowest in the state hospitals and highest in the private hospitals. The extent to which psychotherapy is employed in a given type of facility does not necessarily indicate the attitude of the personnel of that facility regarding its efficacy. Closely correlated with the extent to which psychotherapy is employed is the size of the psychiatrist's case load. The number of ancillary personnel trained in the use of psychotherapy appears to be negligible.

Hypnotherapy and psychoanalytic therapy were found to be used in less than 1% of hospitalized schizophrenic patients. Of the few who receive these therapies, most of them are being treated in the private facilities.

The judgements obtained view psychotherapy as more or just as effective as the vocational, recreational, occupational and milieu therapies, and on a par with ECT and insulin coma therapy. Pharmacotherapy is viewed as the superior treatment. The majority of respondents favor (in emphatic terms) somatic therapy in the treatment of schizophrenia. The data suggests that psychotherapy is infrequently employed as the primary or sole treatment. As an adjunct to other methods it enjoys wider (though limited) popularity and acceptance.

This survey indicates that psychotherapy, in the treatment of hospitalized schizophrenics, is not used as extensively as other forms of therapy. The consensus suggests that it has little value as the sole method of treatment and that its merits may be only as an adjunct to the somatic therapies. Psycho-pharmacotherapy appears to be the treatment of choice for this group of patients, and this is reflected in the relatively small proportion of hospitalized schizophrenics receiving psychotherapy at any phase of their illness. An inference from the data may well be that the type of schizophrenic process found in the chronically hospitalized patients is not generally responsive in a major way to psychotherapy. Additional factors obviously are large caseloads and limited trained personnel to carry out psychotherapy. The small or private hospitals report a much more frequent use of psychotherapy.

The findings of this preliminary survey describe in a general way a nationwide picture of the use of psychotherapy in the treatment of hospitalized schizophrenics and the attitudes, whatever their derivatives, towards its usefulness. Studies of a more definitive nature will doubtlessly become increasingly available. Even more necessary will be studies of the types of patients treated with psychotherapy, an exploration of the nature of the psychotherapy employed, and a more refined analysis of the derivatives of attitudes regarding the efficacy of psychotherapy.

GROUP METHODS IN HOSPITAL ORGANIZATION AND PATIENT TREATMENT AS APPLIED IN THE PSYCHIATRIC TREATMENT OF ALCOHOLISM¹

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This paper describes briefly the organization and the therapeutic plan in a community hospital for treatment of alcoholism, under direction from the psychiatric department of a teaching hospital.

Increasingly, as the concept of alcoholism as an illness becomes widely accepted(1), psychiatrists are implicated in measures to combat the disorder. When in a community a psychiatrist undertakes to organize treatment facilities, some of his recommendations will be unsupported by validated clinical knowledge. What predictably effective techniques are there for treating alcoholic patients? And if there are such techniques, what assurance can be offered that they will prove workable under the particular geographical and socio-cultural conditions in question, that patients will present themselves for treatment, and professional personnel be available to carry it out?

Alcoholism is not a disease entity. Precise clinical or aetiological definition of alcoholism is lacking; various social, psychological or physiological factors may be operative. In psychiatric respects, alcoholic patients fall into a number of nosological categories (personality disorder, psychoneurosis or psychosis) and, in the opinion of some authorities(2, 3), certain socially-habituated alcoholics may have relatively normal personality structure. Reports from different centers undertaking treatment of alcoholism are not comparable because different types of patient may be involved; furthermore, uniform follow-up procedures are seldom adopted.

A PILOT CLINIC TO ASSAY COMMUNITY REQUIREMENTS

To test the demand for treatment, and to

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detect what type of alcoholic patient would present in Cape Town, an announcement of treatment facilities was posted outside a house on a main road, and those interested were informed of a weekly evening clinic.

This clinic was conducted as an open meeting, on modified group therapy principles; opportunity for individual contact with alcoholic patients occurred after each meeting, when the psychiatrist offered outpatient treatment through the psychiatric services of the general teaching hospital. The weekly meetings were attended by drinking alcoholics seeking treatment, by members of local branches of Alcoholics Anonymous helpful in starting the clinic and known to the psychiatrists by wives of alcoholics not willing to come for treatment, and by local committee members of the National Council on Alcoholism.

Numerous alcoholic patients attended the clinic only once, and few of those accepting treatment at the psychiatric outpatient department appeared to improve substantially. However, this outpatient open meeting (retained when the hospital was subsequently opened), in addition to providing supportive psychotherapy to sober alcoholics, demonstrated that without doubt, in Cape Town also, alcoholic patients would come for psychiatric treatment, but that special facilities had to be established. The Administrator of the Hospitals Department of the Cape Province undertook to equip and run a hospital for alcoholism, clinical direction and staffing for which would come from the department of neurology and psychiatry, Groote Schuur Hospital. The Park Road Hospital, a unit of the University of Cape Town Teaching Hospitals' Group, opened March 20, 1959, with accommodation for 30 inpatients in the pleasantly-furnished house with large grounds in a residential suburb.

PRINCIPLES IN TREATMENT

Clinical attitudes tentatively adopted

when the hospital opened have been applied for almost two years.

1. *Group treatment is more effective than individual.* Conventional doctor-patient psychotherapy has been relatively ineffective with alcoholic patients(4) and cannot form the basis of a community treatment approach. The patient (as is apparent from his communications in therapeutic groups) when already involved in psychiatric treatment continues to view the doctor as alien and removed, not capable of understanding "the alcoholic." It is a historical fact that it was a lay organization which counteracted prevailing psychiatric pessimism about alcoholism. Medical failure and misunderstanding was on two scores : (a) The psychotherapist does not have techniques for enforcing a demand that the patient stop drinking ; such authoritative restrictions are contrary to the usual method of psychotherapy. The patient in individual psychotherapy tends to respond to stresses in his relations with the psychotherapist by drinking(4). In group psychotherapy, on the other hand, the patient's peers can enforce the requirement for abstinence, by means of group consensus. (b) The physician, failing to view alcoholism as a chronic and relapsing disorder, tended to "reject" the alcoholic who resumed drinking. In this way many patients who may respond to renewed treatment acquire hostile avoidance of doctors. Of the patients treated during the first year in our hospital, 15.6% required re-admission. It is unfortunate that, while the technical nature of individual psychotherapy is widely grasped, the term group psychotherapy gets applied(5) to some attenuated approaches by practitioners not professionally trained (orientation lectures, movies followed by discussion) which, as Agrin(6) has indicated, are more appropriately termed group nontherapy.

2. *Unless socialized, a temporarily abstinent patient will resume drinking.* The alcoholic patient from his teens has had pathological interactions with people in his environment, eased subjectively, but in reality complicated, by habitual use of alcohol. The drinking pattern of a seriously addicted alcoholic is rarely changed unless he gets himself involved in different (non-critical) personal relationships. He some-

times calls for much social casework in his recuperation from the past decades of occupational and interpersonal failure. A wide range of resources available in the community may need to be mobilized if the abstinent alcoholic is to resume normative social participation. Thus the alcoholic rarely can be treated successfully outside his own community. Applications for admission to Park Road Hospital from patients in distant towns have been accepted seldom. To meet these demands, local clinics are being set up in towns, to be conducted by general practitioners who can obtain training at Park Road Hospital, being subsidized financially during training. Patients on return from brief hospitalization in Park Road Hospital will be supervised in their rehabilitation in the community from such local clinics. The efficacy of such geographical splitting of treatment is being observed in the local clinic started in Port Elizabeth, and if successful will be extended to other towns.

3. *The alcoholic must be personally motivated for treatment.* This well known requirement implies that the psychiatrist must improve his techniques for impelling discouraged patients towards detecting their own latent capacities. In our experience, numerous patients acquire added encouragement and resolution upon finding themselves members of a community of like sufferers. Frequently patients about whom a doubtful prognosis was held when admitted demonstrated that the hospital circumstances can mobilize treatment participation. Self-esteem was immediately increased on admission by the pleasant appearance of rooms and grounds, the acceptance by fellow patients, and the technical approaches of the treatment staff.

4. *Hospitalization permits the initiation of treatment.* My clinical impression is that inpatient treatment holds a proportion of those alcohol addicts known as single attenders in all outpatient facilities. The preliminary nature of the inpatient treatment is emphasized as soon as the patient is admitted ; the significant treatment is that which the patient will obtain when, as an outpatient, he is establishing himself in the community. Failure to provide intensive outpatient treatment facilities(6), and to stress

rehabilitation as the significant aspect of the therapeutic approach to alcoholism, is a major failure in a treatment program.

5. Both physical disability and emotional disturbance require treatment. Medical treatment offers two advantages over a lay approach : (a) In hospital the patient can be treated with drugs during the withdrawal phase, so that interruption of alcohol intake is more tolerable. In addition, physical disorders detected by detailed examination can be treated. (b) Psychotherapy

TABLE 1.
Medical Abnormalities Detected in 180
Patients on Admission to Hospital

| | |
|---|------------|
| History of periods of amnesia ("Blackouts") | 25.3% |
| Hepatomegaly | 13.3% |
| History of epileptic seizures | 12.6% |
| Peripheral neuritis | 8% |
| Optic nerve dysfunction | 2.6% |
| Limb incoordination | 2% |
| Pancreatitis with cirrhosis of the liver | 2 patients |
| Subdural haematoma | 1 patient |
| Coronary thrombosis | 1 patient |
| Diabetic precoma | 1 patient |

peutic procedures applied in hospital enable the patient to communicate stressful mental preoccupations which, once externalized, undergo reduction of tension-inducing tendency. In the morning group meetings the patient relates distressing past experiences or troubling private resentments, and then frequently ceases to be agitated by them. Matters the patient considers too confidential for group disclosure he may hint at during the full psychiatric examination on admission. During his inpatient stay he also has individual interviews with the consultant psychiatrist to whom he is assigned. The resident psychiatrist is available each day should any patient wish to see him, and any member of the nursing staff reports to him if she observes events she considers significant.

THE STAFF

Careful coordination is effected between the organizational administration (the sphere of a physician-superintendent from the parent teaching hospital) and the clinical administration of the hospital. Through informal encounters and frequent meetings the hierarchical ranking of the staff with

rigid vertical lines of command is counteracted. A basic task the staff sets itself is to facilitate a free flow of communication in the hospital and obviate its collection in pockets. Conflicts between staff members are viewed as obstacles to the team-integration without which patient needs are not adequately met(8). All staff members know at least the outline of the therapy plan for particular patients, so that ambiguity can be avoided. (On one occasion a porter, apparently considered too peripheral to be drawn into the informed circle, was overheard by a startled nurse communicating to a knot of patients his own treatment admonition : "And always remember, boys, only one drink !"). Free communication of hospital information is fostered by a weekly staff meeting of senior nurses, occupational therapist, social worker and psychiatrists, where individual patients are discussed and inter-staff relationships are given attention ; policy decisions are made in as clear terms as possible.

The Medical Staff : The psychiatrists(7) meet in a closed meeting fortnightly (the psychiatric social worker also attending). Details are reported by each psychiatrist of the progress of the closed outpatient psychotherapeutic group he is conducting. Comments and additional information coming from his colleagues may prove useful.

Mr. A., in an outpatient group and adjusting well to sobriety, arranged for his alcoholic friend B. to be admitted to the hospital. (Mrs. A. was a member of the wives' group). B. told his psychiatrist that he was Mrs. A.'s lover, a fact her husband did not know. Pursuing the policy that information should circulate as freely as possible, the psychiatrist conducting the group to which Mr. A. belonged was given this knowledge. In time B. communicated to his psychiatrist that he and Mrs. A. had agreed she would tell her husband of the liaison. Having done so, she discussed the affair in the wives' group ; Mr. A. ventilated his disappointment and anger in his own group, which required him to perceive that he must have been motivated to overlook what was happening under his nose. (Possible homosexual attachment to B. was not suggested to him either by his fellow-members or by the psychiatrist conducting the group.) This complex chain of disclosure, acceptance and, to some extent, open exposure of significant mutual deceptions

was accomplished without Mr. A. relapsing into drinking. Mrs. A. went through a pregnancy and A. continued sober. Mr. B. broke off contact with the hospital after his discharge.

This careful integration of such different strands of information about each patient and his interactions is achieved through precise and organized staff communication and is a major technical procedure. By meticulous attention to what is going on the staff can comprehend and minimize noxious social entanglements to which alcoholic patients are particularly prone. By their participation in the hospital activities staff members narrow the gulf between them and the patients. Writers sometimes describe such patient entanglements in their hospitals(6), the staff recognizing untherapeutic associations only after they have been established. Perhaps a therapeutic milieu may be said to exist to the extent that such entanglements between patients are entered into by staff members, who at the same time practice professional avoidance of any personal social involvement with patients. Detailed and alert awareness of subtle communications by patients, the essence of good staff coordination, is only useful if the patient is handled with professional responsibility, a condition which was not obtained in some of our notable treatment failures (see report of group meeting following).

The *Nursing Staff* who are exposed throughout the day to interactions with demanding and socially provocative patients may need much guidance and support, especially if psychiatrically untrained. The use of group methods to train nurses to recognize and utilize therapeutically the excessive emotional involvement engendered by dependent patients has been evaluated in our hospital by Wolff(8). As a didactic procedure the group method is useful; however, nurses with character neuroses are not effectively restrained from disruptive contributions to the patients' milieu experience.

The *Psychiatric Social Worker* does not duplicate the psychiatrists' function, as in some clinics for alcoholism(9); having her own specific functions, she does not concern herself primarily with the patient's psychiatric status. A careful definition of her role has proved of considerable value: she

deals with the patient's social adjustment, performing a social service function (although in possession of the psychiatric data of his case); but towards relatives she may exert a psychotherapeutic influence.

She interviews the near relative of every patient, thus obtaining an objective psychosocial account, draws the relative into active concern about the treatment process, and she may propose the spouse (if still in the picture) as a potential member of the wives' group. She contacts employers or potential employers, assists the patient with his social disabilities (income tax arrears, failed maintenance payments to divorced wife, etc.). She follows up patients in their outpatient phase, participates with the psychiatric staff in teaching medical students, social workers, clergymen; and she counsels relatives of patients who recommence drinking. She has the responsibility of conveying to the staff the essential social information.

The *Occupational Therapist*, in addition to enabling patients to be active with creative tasks while in hospital, supervises the patient committees organizing the weekly social club and the hospital shop, and reports back her observations to the total treatment staff.

THE PATIENT'S CONTRIBUTION TO TREATMENT

Central to treatment is the concept that, alcoholism generally responding poorly to an individual approach, group processes have to be initiated and maintained at various levels of hospital activity. Group interactions among patients lead to insights that may enable the patient to modify his patterns of behaviour, especially those contributing to his use of alcohol.

Patient control of aspects of the hospital organization is designed to lead the patient to perceive that he is capable of responsible behaviour, which is in fact expected of him. Doors are not locked, there is no bedtime hour, a newly admitted patient is shown the hospital by a fellow-patient, patients elected by their fellows run the hospital shop, etc. Rules are kept to a minimum, so that patient autonomy in the hospital's social climate can be fostered (with technical participation of the staff to modify the social interactions into a treatment process).

The staff-orientation and coordination, to-

gether with the patient autonomy, are remarked on by patients in terms conveying security. "I'll never want to leave," patients sometimes say in group meetings, or : "It's like a hotel." At the same time angry reproach is repeatedly expressed that not enough is being done, *i.e.*, no active treatments applied of which patients can be passive recipients and the ineffectiveness of which, presumably, patients can demonstrate as soon as they leave hospital. Instead, the patient grasps that it is his own resources which must be summoned to help him in his present strait. The most immediate therapeutic ingredient of the program appears to be the personal relating between the patients themselves. In group and informal discussion they learn what behaviour is appropriate in the hospital, what clinical facts are known about alcoholism, how Antabuse can be useful in helping to cover the next 48 hours. Inpatients throughout their hospitalization are in contact with outpatients, at various stages of rehabilitation, returning to their weekly group meetings or to the social club. During the 23.7 days which, on an average, the patient is in hospital he is acquainted with the way treatment can help him modify the psychological sector implicated in his drinking. Marked behaviour modifications do occur in the hospital ; in fact, the staff knows fairly definitely after a few days which patients are not going to be affected by the influences the hospital milieu is devised to provide. These influences I shall attempt to define.

It may be a prerequisite for treating alcoholic patients that the environment be made non-conflictive, non-threatening and non-critical. Otherwise the patient will never lack for an excuse, in which he himself firmly believes, for drinking. However, when tensions between those undertaking his care are minimal, when he is not exhorted or reproached or criticized, the moment comes when he reflects, usually aloud so that he can be heard, "I wish I had a drink now." But his environment is now placid, not haphazardly eventful ; the onus can be placed on him to detect why he should be tense, or agitated, or resentful, and need alcohol to sooth such mental discomfort. At this time many patients recognize for the first time that stresses are pre-

texts. With help usually forthcoming from fellow patients, they take the step of initial self-exploration : "These memories of past events, these inner thoughts *do* worry me. They may have played a part in my drinking. I may be able to change my attitudes so that these thoughts don't upset me so much." It is in this mode that the patients bring out in the morning group meetings the extraordinary, humiliating or appalling experiences they had never discussed before. For other participants in the group meeting such self-recognition, and acceptance of responsibility to change, is often an experience evoking reciprocal communications. Rivalries or frank hatreds that have arisen in the hospital between fellow patients are disclosed with strongly expressed affect ; the hating individual is enabled to remain in proximity with the hated one, and to explore the strong feelings in both of them. The patient who is clearly recognized by the staff as getting benefit from the hospital is the patient who, through his participation in the group experience, realizes with the impact of insight that the responsibility is his for some aspects of his setbacks in living.

Alcoholics Anonymous brings many people to this realization, as is evident from the famous supplication, "God grant me . . . courage to change the things I can . . ." When psychiatric techniques are used with those alcoholics not responding to self-help in the lay organization, disengagement from external stresses, by providing a therapeutic atmosphere, may be an essential preliminary for arousing in the patient a preparedness to identify inner stresses, and enable him to comprehend that, although shadowy, these inner stresses can be progressively understood, and counteracted through authentic personal engagement with others who have the same problems to contend with.

If both the patient and the staff realize early how complex and subtle a process recovery is, neither will be so cast down by failure in a particular case as to consider further effort futile. The staff finds in the proportion of successful cases sufficient satisfaction to counteract disappointment when patients in whom much was invested are not benefited.

A FAILED CASE AT AN OUTPATIENT GROUP MEETING

Each outpatient group meets 1½ hours weekly, of course always with the same psychiatrist as conductor. The author conducted the meeting reported here, the 23rd of this group, on an evening its regular conductor could not attend. The 8 outpatient members attending were known by him.

The session was dominated by a man who had lapsed in his outpatient attendances after he had started drinking again. He had been drinking that evening. The contributions of this man will be described selectively, to convey how some alcoholics test and strain the treatment procedure. It will be seen that a staff-member got implicated in the acting-out of the patient's pathological dependency needs ; he also involved socially a fellow-member, Mr. C. ; he monopolized the treatment time that evening ; he indicated he had become involved in social difficulties of criminal proportions which psychiatric intervention could not alleviate. Moreover, psychological treatment being mediated by verbal communication, this patient was handicapped by thought processes not uncommon in alcoholic patients (related to emotional immaturity), a self-evasiveness of the double-bluff type. The psychiatrist, for example, knows the patient is being untruthful, but the patient will continue his communications only provided the conversational deception is not challenged. If it is, an angry response is evoked, with the patient removing himself. With mild intoxication, as this patient illustrates, such "insincerity" is exaggerated.

That the lapsed member had been drinking was anxiety-provoking for the others in the group who stressed to another member how unwise it would be for him to discontinue his Antabuse pills, as he was then contemplating. This other member induced more tension by overenthusiastically proclaiming that he would never again take another drink. The lapsed member reminded his fellow members that at Christmas time, in his bid to resume social drinking, he had started to take beers "through Antabuse," while still attending the group meetings. They had been right to try to stop him. He had now been suspended from his job ; however, he could get it back at any time. He was not living with his parents, but in the home of a nurse of the hospital, whom he would not name. The doctor pointed out it was contrary to group procedure to make secrets of matters which were of concern to

all members. Some members then said they had heard the lapsed member was living in a nurse's household, admitting they had not brought themselves to discuss this in the meetings although it might have been wiser to do so. The lapsed member then mentioned by name a nursing aide, not professionally trained.

The doctor made the interpretation that the lapsed member appeared to demand, over and above the treatment provided, that the hospital should provide him with a fulltime nurse to look after him permanently. Angrily the lapsed member denied this and said how sorry he was the present doctor was conducting the meeting, and explained tensely that his purpose in coming that night was to request the regular conductor to intercede for him at his job : he had been suspended and was going to be fired. The group members ignored in their remarks that he had at first said his job was secure in spite of his suspension ; when the doctor pointed out his inconsistency, the lapsed member rose furiously to leave. The doctor said the lapsed member when angry appeared to remove himself from the scene rather than express in words what he was feeling. The lapsed member said, "Yes, I'm in the hell in with you," and sat down smiling. He then accepted interpretations that he was viewing the hospital as a support against harsh employers. His fellow members supported him with descriptions of their occupational setbacks, one member describing with careful detail his annoyance over being fined £15 one Christmas day for drinking a pint of beer when he was a fireman. The doctor took these remarks as indication that the group was inclined to be comforting to the lapsed member ; his response was to report that on his way to work each morning he stopped at his mother's house to get a cup of coffee. The doctor again pointed out the strength of the lapsed member's dependency needs : "You seem to need your mother and the nursing aide and your doctor to lean on at present." The lapsed member then said he was in serious trouble ; he had expropriated money on his job, using it to buy drink. The nursing aide's husband drank with him.

The nursing aide's position was then taken up. After discussion it was pointed out she had broken a rule of the hospital, one of few, that patients inevitably suffered interference in their treatment when staff members engaged in social relationships with patients. The group became agitated, Mr. D. protesting that every step likely to save the lapsed member from the terrible consequences of his alcoholism was justified. A number of members expressed

how "motherly" they had found the nursing aide while they were hospitalized. But Mr. C. who in trying to contact the lapsed member had taken to visiting his parents, stressed that his parents would very much want to have him home with them. It wasn't as if he had no home. His parents' main wish, in fact, was that he should marry a nice girl so that they could make over their house and all their furniture to him.

The lapsed member burst forth that he hated his father. His father was the sort of man who, if he asked for a chisel and you brought him a hammer, would hit you over the head with it. He offered to leave the nursing aide's house. "She is sick tonight, that is why she has not come on duty." Other members explored how awkward it must have been for her to decide whether she would come to her work at a time he would be attending the hospital, knowing she had gone against hospital procedure in having him lodge secretly with her. The doctor emphasized this point, that psychotherapeutic interactions depend on frankness, not only on the part of patients but also from responsibly cooperating members of the staff, so that all could rely on a secure setting in which to pursue the task of self-understanding.

The lapsed member exclaimed that if frank disclosure was the thing, he could tell the group what had spoilt his life. When he was 5 years old he saw his father slap his mother's face. He "toddled" from the house into a field, vowing never to forgive his father. Since then he had hated his father. That was why he drank. He got himself drunk and then went to his parents' home expressly to show himself intoxicated to his father. It was satisfying to him to make his father angry and distressed. "Do you want to know why I am still single?" he demanded.

This discomforting question was disregarded, the group instead discussing animatedly the scene of parental strife just described. Mr. D. said he disbelieved the mere witnessing of a smack could lead to alcoholism. The members detailed occasions when they themselves had struck their wives, especially when not sober, indeed, how their wives had thrown coffee cups, etc., at them, but no grudges had been borne. The lapsed member was told his parents had forgotten that slap a long time ago. He was urged to forgive his father; to go further and, after confession, to beg his father's forgiveness for the hatred he had harbored. Mr. C. pointed out that while the drunkenness was intended to wound the lapsed member's father, his mother had told Mr. C. that each time her

son appeared drunk "you were sticking a knife into her heart."

This reference led the doctor to remind the group that the lapsed member had wanted to consider with them why he had remained single. The lapsed member said that when he was a little lad, at the time of the slap, he vowed to wait for his father to die, when he would care for his mother himself.

The group exclaimed with surprise over this wrongheadedness. But the lapsed member persisted: he would never marry, instead intending to devote himself to his mother. Mr. C. was emphatic that the mother desired her son married. The doctor interpreted that Mr. C., like the mother perhaps, might be concerned how the lapsed member met his sexual needs.

The lapsed member began to convey how virile he was, his verbal excesses causing anxiety in the group members. He asked the doctor, "Has your car got a big enough back seat?", offering to have the doctor meet the ladies he knew. He made the group smile participatively when, unabashed by their restraints, he leant forward to demonstrate to the doctor his tie, a red one with the earth, Mars, Venus, etc. on the public side but on the inside, when the tie was folded open, a pin-up girl. This assertion of sexual freedom was not interpreted as miscarried rebellion against an authority presumed to be condemnatory of sexuality; the entire group was now participating in the amused assertiveness, until Mr. D. explained to the lapsed member that precisely what was happening was what his parents might fear, his going with prostitutes. But they were in favour of his having a decent girl.

As the meeting closed the lapsed member said he would obtain Antabuse tablets on leaving and next day he would visit his parents, to tell his father of the hatred he had felt since childhood. However, he did not return to later meetings. He had come close to recognizing that a childhood hatred of his father was affecting his total behaviour; if he could modify this, his chances of being able to stop drinking for longer periods would improve, and even his mode of sexual activity might alter. In this case, the impetus to carry over the group benefits into social action did not take place. The point of treatment failure can be defined. Perhaps no further treatment occurred because his work problems became intolerably pressing, certainly his involvement with the nursing aide adversely complicated treatment. Not being sober may have blunted his grasp, as it facilitated his communication.

EXTENT OF SERVICES PROVIDED

In the first year, 180 patients were treated with brief hospitalization (average stay of 23.7 days) followed by outpatient small-group psychotherapy conducted by a psychiatrist. An additional 105 patients presenting during the year were not admitted, but alternative disposition or treatment arranged.

| | |
|------------------------------------|-------------|
| Total admissions during year | 180 |
| Re-admissions | 28 (15.6%) |
| In direct contact | 105 (58.3%) |
| In indirect contact | 32 (17.8%) |
| Out of contact | 38 (21.1%) |
| Deaths | 5 (2.9%) |

Direct contact means that the patient had continuously attended for treatment, or attended some other hospital activity (e.g., social club) so that he was seen personally and his current status checked. *Indirect contact* means that a relative or close associate in immediate touch with the patient provided a report on his status. It will be seen that contact was not kept with one-fifth of the patients admitted during the first year; many patients did not have addresses when admitted and were not employed. To maintain follow-up with this group would require considerable exertion by specially appointed staff.

Eighteen (10%) of the patients were women.

Four categories of treatment outcome were adopted in making assessment of progress: sober, improved (a judgment that the patient was drinking less, was now working regularly, had returned to his estranged spouse, etc.), unchanged or not known:

| | |
|-----------------|------------|
| Sober | 87 (48.3%) |
| Improved | 26 (14.4%) |
| Unchanged | 39 (21.7%) |
| Not known | 23 (12.8%) |
| Deaths | 5 (2.9%) |

After a year, 62.7% of patients were known to have benefited from the treatment. Some had been sober for over a year when the follow-up was completed, some abstinent only for a few months. There were already 4 outpatient closed groups in progress, the first having met for 53 sessions when the review of the first year was made; in addi-

tion the open group and the wives' group met weekly.

As well as the treatment service provided, contribution has been made to change in general attitudes towards alcoholism in the community. Seminars have been held for medical students, social science students, the clergy, personnel managers, probation officers and general medical practitioners. A close association with the local branches of Alcoholics Anonymous is maintained. The Advisory Committee of community leaders appointed by the Administrator of the Cape Province is an active link between the hospital and the community. Public organizations are addressed by members of the hospital staff, so that knowledge and experience can be spread to agencies and individuals in a position to be helpful to the alcoholic.

SUMMARY

1. A form of hospital treatment for alcoholism, providing short hospitalization followed by prolonged outpatient treatment is described.

2. A therapeutic hospital milieu results from techniques facilitating patient interaction; treatment intervention by the staff is also coordinated through group methods.

3. The patient effects identifications with fellow-patients, his re-socialization commencing with his recognition that inner stresses, which he can be helped to modify, have contributed to his drinking.

4. Small group techniques are an effective means of outpatient psychotherapy when the patient is beginning a sober working adjustment and forming new social relationships.

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THE USE OF STIMULATING DRUGS

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The pharmacologic approach to the treatment of the depressed patient has recently been very active. The increasing number of new preparations has been accompanied by enthusiastic comments: "simply dissolves symptoms of depression . . . with recovery or marked improvement reported to occur promptly in 70-85% of cases"(1); "ameliorates symptoms of depression . . . often capable of normalizing"(2); "anti-depressant without euphoriant effect"(3); and "alleviates the depressive state but does not act as a stimulant"(4).

To the older readers these statements must provoke nostalgia. It was in 1936 that hematoporphyrin seemed "to produce activation, in some cases mental stimulation and in others general improvement"(5). And in 1941 Metrazol "in nearly 73% brings about favorable change classifiable as recovery or as social remission"(6).

In searching for effective antidepressant drugs the most common source has been the cerebral stimulants. In utilizing these stimulants the inference drawn seems to have been that the emotionally depressed patient has a depressed nervous system; unfortunately this assumption still lacks confirmation.

The term stimulant is not currently popular when applied to the new antidepressants. However, if one accepts the definition of a cerebral stimulant as a substance that "exalts the functional activities of the brain"(7), such alter-designations as "psychic energizer," "thymoleptic," or "normalizer" seem less separate.

EFFECTS ON THE CENTRAL NERVOUS SYSTEM

Investigation for effective CNS stimulants has been a difficult one, with undesirable effects more common than desirable ones. This is evidenced by the less recent stimulants such as picrotoxin, metrazol, strychnine and camphor which in the unanesthetized human produce excitation only at the convulsive dose(8). They have been used

in the treatment of depression but were abandoned due to this complication; or conversely used because they did produce a convulsive episode.

Some other preparations capable of producing convulsions at higher than the therapeutic dose are cocaine and anticholinergics such as atropine(8, 9). Both have been prescribed to stimulate the depressed patient.

Seizures have been reported with imipramine (Tofrnil) and the monoamine oxidase inhibitors, but fortunately are rather rare occurrences(10, 11). On the other hand, the recommended dosage of newer drugs may be increased in an effort to enhance their effectiveness; when this occurs, the convulsive threshold may be approached.

The usefulness of the stimulants has also been limited by their multiplicity of actions. This has been experienced by the laity when they take coffee, tea or cocoa in excess and become restless and have their sleep disturbed. Similarly the use of the amphetamine group has been limited clinically by early restlessness and tremor.

The newer antidepressants can produce insomnia, irritability and nervousness, but these side effects occur in less than 10% of patients(12-15). The fact that these side effects occur at all may be due to the structural similarity of these drugs to the earlier introduced stimulants.

For example methylphenidate (Ritalin) and pipradol (Meratran) contain the phenethylamine skeleton just as does the amphetamine group. And the monoamine oxidase inhibitors are hydrazine analogues of these sympathetic amines(16).

EFFECTS ON OTHER BODY SYSTEMS

Aside from the direct effects of stimulants on the nervous system, there are actions affecting other systems. These toxic or side effects frequently are listed at the end of therapeutic reports. This may be analogous to the small print on a legal document, important but unpleasant to consider. Actually this brief description of side effects is justi-

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fied in many drug reports since they may only be an annoyance to the doctor or the patient. This is true of the cardiac arrhythmias and hypo- and hypertensive effects with mild excesses of caffeine and amphetamine(8). Orally the mild cortical stimulants methylphenidate and pipradol seldom produce more than subjective discomfort in the cardiac patient if they are used with caution. Added caution should be exercised with intravenous methylphenidate(12, 17).

With the many new antidepressants made available to the clinician it behoves him to observe his patients carefully for signs of toxicity. It is dubious whether we yet know the range or intensity of side effects, since these can only be determined by prolonged observation. Certain of the monoamine oxidase inhibitors have shown severe degrees of toxicity. Iproniazid (Marsilid) a charter member of the energizers and beta-phenylisopropyl hydrazine (Catron), a more recent arrival are hepatotoxic compounds or produce visual complications(18, 19).

Other members of this group, phenelzine (Nardil), nialamide (Niamid) and isocarboxazid (Marplan) reportedly produce orthostatic hypotension, light-headedness and syncope in 10-20% of cases. Constipation, nausea, edema, hepatotoxicity and drug rash are much less frequently seen(11, 13, 14, 15, 20).

Imipramine and benactyzine have side effects that are atropine-like. This is expected with benactyzine which is an anticholinergic that in approximately 10% of cases produced mild complaints of dryness of the mouth, drowsiness or dizziness at presently recommended dosages(21). With dosages of 250 mg. daily nearly all patients receiving imipramine complained of dryness of the mouth and sweating(22). At lower dosages 10-20% note these. Less frequent effects are tremor of the extremities, dizziness, blurred vision, constipation and hypotension(23). Agranulocytosis and skin reactions have been noted rarely(10, 24, 25).

UNTOWARD PSYCHIATRIC EFFECTS

Since stimulants are not specific, they conceal rather than relieve; and in the end the depressed patient's state may be aggravated. Principally, because observations indicate that it is not possible to stimulate

the central nervous system for a long period without the heightened nervous activity being followed by depression, proportional in degree to the intensity and duration of the stimulation(8).

This leads to the problem of psychological habituation. Patients with a low tolerance for frustration may take more drug to avoid the "let-down" following the interval of stimulation.

An example of the subtleness of a drug's addictive potential was demonstrated in the later part of the 19th century when cocaine became well known as a stimulant and euphoriant. Its severe addictive qualities escaped the recognized acuity of physicians Freud and Hallstedt when it was first put into use. Personal disaster came near to these early proponents of this drug which seemed to selectively elevate mood. Freud was an active proponent and Hallstedt an addict, fortunately a temporary state for both(26, 27).

It is pertinent to remember that there are over 25 compounds related to amphetamine marketed for use as CNS stimulants, bronchiol dilators, vasoconstrictors and appetite depressors. Undesirable, as well as desirable, effects must be considered in the use of all these compounds. That habituation may result is shown in the following cases :

Case 1 : This 31-year-old woman had been taking an amphetamine (Auban) for 4 years ("first to lose weight and then I couldn't stop"). She progressively increased the dosage and at the time of admission was taking 70 mg. of methamphetamine and 420 mg. of phenobarbital daily in this form. Approximately 4 months prior to admission she was observed to work in her home at an exhausting pace and at all hours of the day and night. Mild ideas of reference appeared which increased with the development of paranoid delusions, hallucinations, forgetfulness and agitation. She was hospitalized and these acute symptoms cleared in 3-4 days. It was noted after her first home visit that she was somewhat agitated, confused and exhibited slurred speech. She admitted consuming considerable quantities of the drug again.

Case 2 : This 19-year-old woman had been taking phenmetrazine (Preludin) for 18 months prior to admission. The drug was initially used as an adjuvant to weight reduction. She gradu-

ally increased the dosage to 15-18 tablets daily. Some 5 months prior to admission this previously ambitious, well-controlled student was observed to become loud and abusive over trivial occurrences, failed at work and made a suicidal attempt. One month prior to admission she had explosive temper tantrums, was physically abusive to her mother, became very paranoid and was writing bizarre things. She then made a suicidal attempt by ingesting 100 one-half grain phenobarbital tablets. She was found, brought to the hospital and treated on the medical ward for 3 days for "acute barbiturate intoxication." When transferred to the psychiatric service, she was cooperative and composed. She had some feelings of guilt but the overt psychotic symptomatology mentioned above was not observed.

Since an abstinence syndrome has not been clearly ascertained with the amphetamines, the academic designation of addiction (habituation, tolerance and withdrawal) is a debatable point. But, it has been observed that individuals habituated to the amphetamine series are at least as resourceful in obtaining the drug as the chronic alcoholic and some addicts(28).

Finally, the antidepressants may produce clinical psychiatric symptoms. The ability of the amphetamine series to produce a clinical syndrome often indistinguishable from schizophrenia, in the acute phase, has been described previously(29, 30). The two cases of amphetamine habituation described in this paper are typical of these reports.

Hypomania may be seen with imipramine and the monoamine oxidase inhibitors; and in the former the hypomania has reportedly persisted after discontinuing the drug(31).

COMMENTS

It is evident that the new antidepressants are chemically related to those previously used. There are similarities in structure between atropine, amphetamine, acetylcholine, histamine and the newer stimulants.

By the manipulation of side-chains and other structural changes, the pharmacologist has presented the clinician with these new antidepressant drugs. Though modes of action are unclarified they have proved attractive because post drug "let-down," severe agitation and convulsions have not been prominent in the suggested therapeutic range. The need for stimulants with fewer

side effects is undeniable, but the therapeutic enthusiasm recently shown has yet to stand the test of time(32, 33).

Finally, the ease of treating the depressed patient with a medication possessing no great risks, but uncertain effectiveness, has inherent danger. It may lull the clinician into lessening his precautions against suicide and the application of more proven therapies, i.e., electroconvulsive therapy and hospitalization. The result may be an actual increase in morbidity and mortality. Thus the greatest hazard is not so much the side effects as the lack of proven clinical effectiveness of these compounds.

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DEPRESSION IN THE PSYCHOSES OF MEMBERS OF RELIGIOUS COMMUNITIES OF WOMEN

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A survey of the incidence of hospitalized mental illness among members of religious communities of women in 1956(1) indicated that there had been a considerable increase since an earlier investigation in 1935(2). A comparison of the figures for 1935 and 1956 not only reveals a very significant ($P < .001$) increase over the 20-year period, but a comparison of these figures with the corresponding statistics for women in the general population who were hospitalized for mental illness shows that the rate of mental illness among sisters has increased at a significantly more rapid rate ($P < .02$) than among the latter population. It should be noted, however, that the rate is still considerably lower among religious.

There are a number of objections which can be made to the reliability of this kind of survey and to conclusions based upon it : 1. Statistics on the subject of mental illness are notoriously misleading, especially for comparative purposes ; 2. The apparent increase of mental illness among religious is due to earlier and/or more frequent recognition of problems which have always existed in the same proportions ; 3. There are more facilities available now, hence more religious are hospitalized. While it is true that "fads" in diagnosis, inconsistencies in nomenclature, and non-reporting hospitals do throw statistics on mental illness into serious question, there is no reason to accept the suggestion that these have affected one group differently from the other. Therefore, the present investigation was undertaken on the assumption that there has been a real increase in mental illness among sisters and that it is statistically significant.

The method used was determined in large part by the nature of the material available. A Catholic mental hospital which regularly treats a number of sister-patients allowed the use of the case files of 50 religious who had been or were currently hospitalized for

a variety of mental disorders. The cases were drawn according to diagnosis, in numbers proportionate to the distribution of diagnoses in the 1956 survey. The completed sample included : 25 schizophrenia of which 13 were paranoid ; 8 manic-depressive of which 4 were depressive reactions ; 5 involutional psychosis ; 2 cerebral arteriosclerosis ; and one each of senile psychosis and chronic alcoholism.² The analysis of these histories was almost completely unstructured, not so much by design as by their uneven quality and their relative completeness or incompleteness. The histories were searched for any appearance of regularities or patterns of relationships, in the hope that there might be isolable some uniformities in family background or work history or symptomatology which might constitute or reflect causative factors in the sisters' breakdowns.

The report of this investigation confirms and underlines the commonplace that case records are still not very helpful in the attempt to unravel the etiology of mental disorder. In the case at hand, one can presume that the informants were sometimes led to conceal certain data from psychiatrists or hospital personnel because they were ashamed of mental illness, or they feared to put their religious communities in a bad light, or they simply had not been geared to be aware of possibly relevant behavior

² Fortunately, the decision to select on the basis of diagnosis produced a sample which was well-matched with certain other characteristics reported in the 1956 study, chiefly that of the patients' occupation prior to hospitalization. Twenty-eight per cent of the sample, as compared with 27.7% of the survey population were engaged in domestic tasks. (At least 5 of these 14 domestics had begun as teachers or hospital personnel but were unable to keep up with professional demands.) When one considers that sisters in domestic service constitute no more than 4% of all sisters in the United States, the rate of mental illness among them is astonishing and provocative. Forty per cent of the sample (50% of the survey) were teachers ; 16% (14%) were nurses or other professional hospital personnel ; 10% (5%) were cloistered ; 6% (5%) were clerks or other.

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in the patients' background. The case histories reported by these informants are consequently impoverished. This is especially unfortunate, because we have in religious communities a sufficiently homogeneous body, sharing a common system of values, formed by somewhat standardized processes, and relatively easy to control, and it should be possible to learn much of value about mental illness in general from a careful study of this group.

The preponderance in the 1956 survey of disorders in which depression commonly occurs led to the suspicion that self-accusatory depression might figure prominently in the disorders of a majority of mentally ill religious. It must be admitted that the case histories did not yield enough clear data to warrant formulating this as a hypothesis, but the following summary of tabulations, relationships, exclusions, and impressions are submitted as evidence leading to and in support of the proposition that psychotic sisters tend to be symptomatically like one another, especially with regard to manifestations of depressed states.

There was so little reported on childhood experiences in the histories that one would conclude that the patients had had no childhood, and certainly there was nothing of any theoretical significance in this area. There were, however, a number of conditions which appeared in these histories with notable frequency and which, as expected, crossed diagnostic lines quite indiscriminately. For instance, in 30 of the cases the informants volunteered information which indicated that the onset of the patients' illness was of considerable duration—averaging over 6 years. There are a number of considerations which should temper any inclination to generalize from such ambiguous data; nevertheless, in the context of some extraordinarily fragmentary histories, any regularity may deserve more rather than less attention than one would be inclined to attach to it.

If senile and arteriosclerotic cases are excluded, the average age at first hospitalization was 41. For schizophrenics, who form the largest portion of the sample, it was 38. Looked at in another way, this means that the sisters involved had spent, on the average, from 17 to 20 years in their communi-

ties before being hospitalized; and, if we can judge from the histories, the 5 or 6 years preceding hospitalization were increasingly stressful for the patients and their companions, and increasingly unproductive. The average hospitalization for the total sample was 4 years 4 months, although the high incidence of paranoid schizophrenics (whose average hospitalization was 6 years 8 months) creates a deceptively high average. In view of the fact that 35% of the sample had been previously hospitalized at least once, and another 25% more than once, the average period hospitalized during a lifetime for the sisters in this sample will be predictably very high.³

While these data might not in themselves seem to be specifically related to the proposition that the psychoses of religious tend generally to include manifestations of severe depression, they constitute a quantitative backdrop to the context of the religious life in which these patients live, and when viewed in this perspective they may assume new relevance. The following portion of the article combines some information from the 1956 survey and some material from the case histories with some insights based on personal experience of the religious life. The significance of the 4 points issuing from the combination and the conclusion based on them can be tested, presumably, only by further experiential observation.

1. Sixty-four per cent of the case records used in this study contained specific reference to at least one of the symptoms included—not altogether arbitrarily—under the term self-accusation, namely: scrupulosity, a sense of worthlessness, a sense of failure, the desire to be destroyed. An additional 12% were described without further elaboration as being "severely depressed" prior to and during hospitalization.

2. The rates of hospitalized sisters per 100,000 in each of the specified occupations in the 1956 survey were: domestic, 3042; cloistered, 645; teachers, 420; professional hospital personnel, 228. As has been pointed

³ Here again the sample is notably like the universe from which it was drawn. In 1956 the average age at first hospitalization was 44; the average length of hospitalization was nearly 5 years; 48.4% had been previously hospitalized for mental illness.

out, the occupational distribution in the present sample is almost identical with the survey distribution, and it can be assumed that these rates are more or less stable. It may be no more than an interesting coincidence that the rates of psychosis increase as we move from the most totally absorbing and "distracting" occupations to those which leave the greatest freedom to the mind.

3. Asceticism, the practice of systematic self-denial for the purpose of attaining a higher ideal, is an integral part of the religious life. In the interest of ascetical practice, exercises in deliberate and controlled self-examination and introspection are institutionalized in the religious life. If these exercises are undertaken without prudent direction and/or by unstable, immature persons, they can easily and insidiously develop into gross depression. The case histories strongly suggest that such depression becomes a stage in a circle of abnormal manifestations which may eventually include the delusions and hallucinations reported in 60% of these cases.⁴

4. A certain amount and kind of insecurity is inevitable in the structure of the religious life. Being uprooted overnight from everything to which they have become accustomed is for some a trauma which is never outlived. The trappings of the life remain for them always uncertain, unreal, painful, and this is all the more difficult, discouraging, and depressing because it is not supposed to be so. Unless or until a person has developed considerable psychological and moral strength and stability, some of the demands associated with practicing the vows of poverty, chastity, and obedience can constitute an over-rigorous

program. Because of the organic structure of the religious life, failure or inadequacy, even in morally neutral matters, is often interpreted to be a matter of moral guilt, and repeated failure or experience of inability to meet standards intensifies depression.

CONCLUSION

This report is not intended to suggest that psychotic religious, or religious in general, are more depressed than other occupational or social classes, but to outline some possible reasons, specific to their life, why those who are depressed become so. Great stress is laid in religious life on hard work, high productivity, and "success" in the strictly religious and spiritual aspects of conventional life as well as in the "active" or professional works which they undertake. (The traits of the "American character" are quite faithfully mirrored in American religious communities.) In addition to these cultural influences, certain immature or poorly instructed religious are plagued by the suspicion that every failure is a sin, and for this reason their mental disturbances themselves become a circularly reinforcing cause of depression. The early onset and lengthy course of their disabling disorders, and the high rate of recurrence, further intensify their depression.

Considering the carefully structured character of religious life, it would seem that more careful selection among those who apply for permission to undertake the life, joined with precise and accurate moral and psychological instruction of those admitted could do much to reduce appreciably the abnormally depressed states among religious.

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⁴ It would be illogical and mistaken to conclude here that the self-examination and introspection are faulty methods to be employed in pursuit of an ideal; there is a great body of evidence to the contrary. What is implied is that they must be exercised wisely and under wise direction.

MURDER AS A REACTION TO PARANOID DELUSIONS IN INVOLUNTIONAL PSYCHOSIS AND ITS PREVENTION

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Murder of the spouse as a reaction to delusions of infidelity and/or delusions of persecution is an ever present danger in patients suffering from involuntional psychosis, paranoid type. In order to illustrate the malignancy of this clinical picture, I would like to relate excerpts from case records of patients charged or indicted with Murder, first degree, and committed to Matteawan State Hospital for the Criminal Insane :

Case 1 : This 43-year-old white male patient of pyknic habitus and average intelligence was never in conflict with the law until he was arrested for homicide. For several years he had been sexually impotent and suspicious of his wife's infidelity. He described progressive distrustfulness of her to the point where he would inspect her genitalia to see if she were sleeping with other men. Finally, he was so preoccupied with his delusional system of her unfaithfulness that he was unable to work, lost his job and his wife separated from him. While appealing to her to return to live again with him, he shot her because of her refusal.

Case 2 : This 55-year-old white male patient strangled his wife with a chain. Patient had become sexually impotent for about a year preceding the crime, and had delusions about poisoning by his wife. For several months prior to the crime he expressed ideas of infidelity and blamed the loss of sexual interest on his wife's nagging. His psychosis was characterized by ideas of infidelity, ideas of persecution directed against his wife, ideas of poisoning, misinterpretation of real occurrences and somatic complaints. His homicide was a reaction to his paranoid ideas directed against his wife.

Case 3 : This 59-year-old white male patient was always shy and retiring ; he became depressed in December, 1959. This depression led to his retirement from the postal service ; he sold his home on August 1, 1960 and moved to a new residence. He became increasingly more depressed and withdrawn. Following an argument with his wife he strangled her and then attempted to commit suicide by turning on the gas but was found by the police and arrested. In this case the diagnosis was involuntional psychosis, melancholia.

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Case 4 : This 52-year-old white male patient had been previously hospitalized because of depression, jealousy and ideas of infidelity. On January 13, 1957 he stabbed his wife to death and then planted the knife into his abdomen in two places. Patient's psychosis was characterized by ideas of infidelity and ideas of persecution. His homicide was a reaction to his delusional system. He claims that his wife wanted to put him in a psychiatric hospital to get rid of him, while, at the same time, she was showing interest in younger men.

Case 5 : This 69-year-old white male patient showed evidence of mental illness for the first time in 1937, at the age of 46. It was characterized by ideas of infidelity, ideas of reference, misinterpretation and somatic complaints. Patient separated from his wife and finally obtained a divorce in December 1954. He remarried within a short period of time, again developed ideas of infidelity, ideas of poisoning and mild ideas of persecution with evidence of illogical thinking. He continued to express many somatic complaints. He had ideas of infidelity which he based on very trivial happenings but he still seems convinced that they were proof of infidelities on the part of his wives. At the age of 63 he finally killed his second wife by strangling her with his bare hands. It was felt that while there had been recurrent periods of depression, the underlying mechanisms belied a deep-seated schizophrenic psychosis which again became acute in the involuntional period to such an extent that the patient killed his wife as a reaction to his delusions of infidelity and persecution.

Case 6 : This 62-year-old white male patient first began to show mental symptoms early in 1953, at the age of 55. His psychosis had been characterized by preoccupation, seclusiveness, restlessness, lability of the emotions, ideas of reference, irritability and depression. He was twice treated with ECT and showed marked improvement. When he was discharged from the hospital, he apparently was in a remission from his involuntional psychosis but there were still residuals in his mental condition with depression and irritability. Soon again he voiced ideas of reference and delusions of persecution towards his wife. Finally, at the age of 58, during an argument with his wife, he killed her with a knife. The diagnosis of involuntional psy-

chosis, paranoid and depressive features had to be continued.

Case 7: This 57-year-old white female patient has a history of longstanding abnormalities of personality traits and habits which developed into overt insanity about 8 years ago, about the time of her menopause. Her psychosis had been characterized by depression, agitation and delusions and culminated in the murder of her husband, because of her belief that he had cancer. She had delusions of persecution and ideas of reference.

Case 8: This 45-year-old colored female patient had an apparently normal childhood and adulthood development. Patient had a hysterectomy in 1944. Over a period of a year from the beginning of her menopause, she gradually developed a psychosis characterized by hypochondriacal complaints, ideas of infidelity and paranoid ideas concerning her husband, culminating in the murder of her husband. She admitted that about a year before the murder, she thought that people were staring at her and she admitted auditory hallucinations, claiming that at the time of the murder she thought there were other people hiding in the house who were talking to her.

These are some of the more characteristic cases of homicide which occurred as a reaction to delusions of persecution and/or delusions of infidelity in patients suffering from an involutional psychosis. Many other cases were committed by Court with the charge or indictment of assault, after they had unsuccessfully tried to kill their marital partner as a reaction to their delusional complex of ideas. It is noteworthy that the majority of the male involutional patients committed for murder or attempted murder of their wives as a reaction to delusions of infidelity and/or persecution are of Latin cultural background with a high respect for

the inviolability of the marriage vows as far as the women are concerned. In comparison with the male patients, among 86 women committed for murder (with a total adult female population of 200), only 3 were diagnosed as involutional psychosis and none of them were of Latin cultural background. In all of our patients the homicidal act was preceded for many months or years by a slowly developing involutional psychosis with ideas of persecution and/or infidelity.

Recently much has been published about the prevention of suicide but nothing so far about prevention of homicide. We have to be on our guard if an involutional patient expresses paranoid ideas about his spouse. The forebodings which always exist should not be ignored. These patients should be hospitalized and kept under strict surveillance if there is a serious, well-founded fear of the marital partner threatened by the paranoid patient. Prevention is better than treatment.

CONCLUSION

Eight short case histories were presented of patients admitted to Matteawan State Hospital for the Criminal Insane charged or indicted with murder, first degree, occurring as a reaction to paranoid delusions of an involutional psychosis. In all of these cases, forebodings of the malignant nature of patient's mental illness were present. This would indicate that these patients harbored potential homicidal tendencies for a prolonged period of time. A patient in the involutional period with potential homicidal tendencies as a reaction to paranoid delusions, should be hospitalized as a preventive measure as early as possible, the same as is done with potential suicidal patients.

A QUANTITATIVE STUDY OF CHLORPROMAZINE AND ITS SULFOXIDES IN THE URINE OF PSYCHOTIC PATIENTS

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INTRODUCTION

After the introduction of chlorpromazine in psychiatric treatment in 1951(1) many clinical reports followed, attesting to its efficacy. These data are summarized in a number of recent reviews(2, 3, 4), but a series of issues remain unresolved. These are : (a) the difficulties in determining adequate dosage levels without any means other than clinical observation(5) ; (b) the duration of maintenance of the patient who has shown a favorable response to this type of treatment(6, 7, 8) ; (c) the factors which influence the variations in the rate of regression when such patients are taken off medication(9, 10) ; and (d) the introduction of more potent congeners(10) of chlorpromazine has re-emphasized the need for information relative to the metabolism of these compounds.

A review of the literature indicates that relatively little is known concerning chlorpromazine metabolism in man although there are a number of studies on the metabolism of the drug in animals(11, 12, 13, 14, 15, 16) in which different metabolic patterns have been demonstrated(14). Salzman and Brodie(16) found a negligible amount of unchanged chlorpromazine and about 5% of sulfoxide in the urine of 2 patients receiving 900 mg. of chlorpromazine administered orally. Berti and Cima(14) reported finding 20% of the administered dose in the urine of man following a single oral dose of 100 mg. of chlorpromazine, but the nature of the metabolites was not examined. They also reported finding over 90% of the chlorpromazine metabolites in the urine of man as sulfoxides ; however, Posner(17) suggested that phenol formation represents a major pathway of metabolism of the drug. Nadeau and Sobolewski(18) carried out studies relative to the conjugated forms. They reported that following chemical or enzymatic hydrolysis 10 to 20% of the con-

jugated fractions was recovered in the urine of subjects receiving 75 to 300 mg. of chlorpromazine daily. Lin, *et al.*(19) demonstrated glucuronic acid on paper chromatograms after the enzymatic hydrolysis of the urine. Fishman and Goldenberg(20) reported detection of 6 sulfoxides plus other unidentified polar metabolites, and Haynes(21) found 5.5 to 9.0% of the ether extractable metabolites as bound chlorpromazine and free and bound chlorpromazine sulfoxide in the urine of 4 patients receiving daily dose of 200 mg. and 800 mg. chlorpromazine for 4 to 11 days.

As a result of this survey and the considerations indicated above an experimental study^{2, 3} was initiated : 1. To determine the total amount of free chlorpromazine and its sulfoxide in the urine of chronically ill, psychotic patients being maintained on chlorpromazine ; 2. To determine the changes occurring in the levels of free chlorpromazine and its sulfoxide in the urine of patients when medication is discontinued. Are there differences between excretory patterns of those patients who regress quickly and of those patients who maintain their improvement for longer periods of time ? 3. To determine when treatment with chlorpromazine is reinstated what effect it has on the pattern of chlorpromazine metab-

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TABLE 1
Chronically Hospitalized Male Schizophrenic Patients

| PATIENT | AGE | HOSPITALIZATION | BEHAVIORAL PATTERN IN REGRESSION | BEHAVIORAL PATTERN IN REMISSION | DRUG* RECEIVING** TREATMENT FREE | MSRP |
|---------|-----|-----------------|---|--|----------------------------------|------|
| 1 | 25 | 6 yrs. | Smiles in hostile manner. No truth to his statements ; delusional, hallucinated. Pushes other patients. Needs seclusion for his own protection. Confused, resistive. | Helps with ward work ; understands what is said ; quiet and cooperative ; occasional visits home on Sundays. Tends to be more withdrawn. | 59 | 58 |
| 2 | 19 | 3 yrs. | Euphoric and hyperactive, alternating with depression, physical complaints, starts fights, nervous movements of fingers. | Has ground parole, friendly, goes home on weekends ; appears much more at ease. | 26 | 19 |
| 3 | 53 | 28 yrs. | Seems miserable, unhappy, apathetic, withdrawn from all activities, hallucinated, removes clothing, autistic behavior, irritable, restless. | Is tolerant of other patients ; less delusional and irritated ; relaxed and comfortable | 30 | 32 |
| 4 | 37 | 9 yrs. | Confused and slow ; withdrawn, hallucinated, preoccupied ; becomes a feeding problem in response to a delusion of "something going on inside." | Less delusional, ground parole, will talk with other patients, helps with ward chores and is cooperative to ward routines. | 27 | 27 |
| 5 | 41 | 16 yrs. | Hallucinated, suspicious, delusional and restless, autistic, dissociated, appears very uncomfortable and sleeps poorly. | Ground parole, relaxed ; not so anxious ; friendly with everyone—very little delusional content expressed ; seems to sleep and eat well. | 50 | 26 |
| 6 | 40 | 22 yrs. | Withdrawn, restless, seclusive and almost mute ; answers are irrelevant ; paranoid ideation is expressed, becomes aggressive ; will elope. | Answers questions meaningfully ; helps with ward work ; cooperative to ward routines and has ground parole. | 64 | 31 |
| 7 | 48 | 4 yrs. | Confused, mutters to himself, goes into a catatonic stupor, is agitated, refuses to drink or eat or take care of his personal hygiene, gives negative answers to questions. | Becomes cooperative to ward routines and is no management problem. | 38 | 41 |

* Obtained usually within the last few days of this period

** Obtained in the last few weeks of treatment

} Structured in this manner in order that the test design not be exposed to the rating psychologist.

olites excreted in the urine : (a) when compared to their previous pattern and (b) when compared to the degree of stability maintained without the drug.

METHOD

A group of 7 hospitalized, male schizophrenic patients who were being maintained on either chlorpromazine or one of the phenothiazine drugs and housed on the same ward was selected for this study (Table 1). Patients Nos. 1, 2, 3, and 4 were being maintained on chlorpromazine prior to the study. Patients Nos. 5, 6, and 7 had been on trifluoperazine. The group was limited to 7 since the resources available for the chemical studies were very modest and the studies were highly exploratory in character.

Prior to the study evaluations of the patients' clinical status were obtained during several interviews with the research psychiatrist. Data on their behavioral patterns were recorded from nursing notes and interviews with the ward personnel who had known the patients for some time. The patients were also rated by a psychologist working blind utilizing the Multidimensional Scale for Rating Psychiatric Patients (MSRPP) (22). This is a factor-analyzed

scale yielding scores on several dimensions of psychopathology, including a total morbidity score.

Then the patients' previous medication was discontinued. The drug free phase was allowed to proceed until the patient began to show signs of deterioration. This was usually characterized by increasing discomfort and accentuation of his symptomatology. At this point drug therapy with chlorpromazine was instituted in all cases (Table 2).

CLINICAL OBSERVATIONS

These were made according to the following plan : the patients were seen during the first year of the study on the average of once weekly ; the same nursing personnel remained assigned to the ward and were very familiar with the patients and the characteristic fluctuations of their behavior ; and the same psychologist carried out the ratings.

The decision at which point the patient's drug free period (Table 2) should be terminated resulted in a division into two samples : (a) Nos. 1 and 2 in whom the decision was relatively easy since they experienced themselves in increasing outbursts

TABLE 2
Average Daily Excretion of Chlorpromazine (CP) and Chlorpromazine Sulfoxides (CPO)

| PT. NO. | DRUG FREE IN WKS. | DAILY DOSEAGE IN MGS. | WKS. OF RX. | AVERAGE EXCRETION* | | CP | % | CPO | % | REMARKS |
|------------|-------------------------|-----------------------------|----------------|------------------------|-------|-------|------|--------|-------|---------|
| | | | | CP AND CPO (IN MG.) | % | | | | | |
| 1 | 3 | 300 | 1 | 20.68 | 6.89 | | | | | a |
| | | 400 | 2 | 27.90 | 6.98 | | | | | a |
| | | 600 | 6 | 45.85 | 7.64 | | | | | a |
| 2 | 3 | 300 | 1 | 15.42 | 5.14 | | | | | a |
| | | 400 | 2 | 27.54 | 6.89 | | | | | a |
| | | 600 | 6 | 50.02 | 8.34 | | | | | a |
| 3 | 3 | 600 | 7 | 60.16 | 10.03 | | | | | a |
| 4 | 7 | 300 | 1 | 10.14 | 3.38 | 0.25 | 0.09 | 9.89 | 3.30 | b |
| | | 600 | 13 | 22.78 | 3.80 | 0.77 | 0.13 | 22.01 | 3.67 | b |
| | | 900 | 1 | 58.09 | 6.46 | 3.67 | 0.41 | 54.42 | 6.05 | c |
| | | 1200 | 4 | 202.90 | 16.91 | 14.80 | 1.23 | 188.10 | 15.68 | c |
| 5 (d) | 18 | 300 | 1 | 3.91 | 1.31 | 0.56 | 0.19 | 3.35 | 1.12 | b |
| 6 (d) | 27 | 300 | 2 | 7.87 | 2.62 | 0.97 | 0.32 | 6.90 | 2.30 | b |
| | | 600 | 1 | 38.97 | 6.50 | 2.45 | 0.41 | 36.52 | 6.09 | c |
| | | 1200 | 4 | 109.90 | 9.17 | 14.20 | 1.20 | 95.70 | 7.97 | c |
| 7 (d) | 16 | 300 | 9 | 61.63 | 20.54 | 8.40 | 2.80 | 53.23 | 17.74 | c |

Notes : (a) Originally the combined quantity of CP and CPO was determined.

(b) Subsequently CP and CPO were determined separately according to the Salzman and Brodie method(16) as modified by these investigators.

(c) The last technique utilized for CP and CPO was determined by quantitative paper chromatography.

(d) Patients Nos. 5, 6, and 7 had been on trifluoperazine prior to being placed on this study.

* Average excretion was obtained by taking the number of determinations during the period of the specific dosage totaling them and dividing by the days on the specific dosage.

of hyperactivity, irritability, conflicts with other patients, and caused increasing difficulty of the ward management (Table 1); (b) Nos. 3, 4, 5, 6, and 7, who were much more difficult to determine since their regressive patterns were not as dramatic, but were a slow drift toward increasing psychopathology (Table 1). In this latter group it took at least 2-3 weeks to make a decision. Once the impression had been obtained that the patient was displaying signs of increasing discomfort, *i.e.*, responding more markedly to delusional and hallucinatory experiences, neglect of food, increasing difficulty in conforming to ward routines, verbal expressions which seemed to indicate increasing discomfort with a marked increase in psychotic content, the drug free interval was terminated.

In this phase of our study, the MSRPP ratings (Table 1) tended to show a range of variability which indicated that its application to such a small sample was limited. Obviously a larger number of patients would have to be studied through a series of drug free and treatment phases.

Table 2 indicates that the drug free interval ranged from 3 to 27 weeks. Following this initial drug free phase, different dosage levels were used for varying periods in order to obtain some information as to the levels at which maximum improvement occurred as observed by clinical comparisons of the remission obtained and for the purpose of determining the variability of the metabolites being measured.

CHEMICAL METHODS

The available techniques for measuring the excretion of free chlorpromazine and its sulfoxides in the urine were utilized,

modified, and refined. In addition blood analyses(25) were also carried out from time to time to obtain the levels of chlorpromazine in relation to the dosage used. Comparative paper chromatographic study was carried out on each patient's urine. Studies were initiated to determine the amount and types of chlorpromazine glucuronides(24) present in the urine. These studies will be reported later since this report is concerned only with the excretion of free chlorpromazine and its sulfoxides.

Twenty-four urines were difficult to obtain because of the patient's mental state and various procedures had to be developed for securing specimens at fixed intervals. For a period of time urine specimens from the 7 patients were collected every 2 hours during a 24-hour period on the first day of the week and for the rest of the week at 3-hour intervals during daily 12-hour periods from 10:30 a.m. to 10:30 p.m. (Table 3). The specific gravity of the specimen was recorded and the specimen stored in a refrigerator until analysis could be carried out. At this time 1 ml. each of the sample of each specimen was subjected to the FPN test(23) and spectrophotometric analysis for free chlorpromazine and chlorpromazine sulfoxides (Figure 1).

Later a procedure was utilized in which the 24-hour urine output was estimated by the creatinine content of the day's urine specimen. The standard creatinine excretion rate for each patient was determined in the following manner: 24-hour specimens were obtained by collecting urine every 2 hours for 3 consecutive 24-hour periods for each patient. The creatinine output per day was determined as the mean value for these 3 specimens. The maximum deviation from

TABLE 3
Average Daily Urinary Excretion of CP and CPO In Milligrams and Percentages of the Administered Dose
of CP During a 12-Hour Period (Method of Analysis As₂O₃)

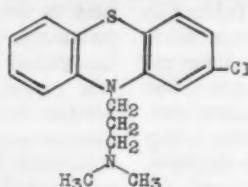
| TIME | 10:30 A.M. | | 1:30 P.M. | | 4:30 P.M. | | 7:30 P.M. | | 10:30 P.M. | | TOTAL | |
|-------------------|------------|------|-----------|------|-----------|------|-----------|------|------------|------|-------|------|
| | mg. | % | mg. | % | mg. | % | mg. | % | mg. | % | | |
| Pt. No. 1 | | | | | | | | | | | | |
| 150 mg. t.i.d.* | 1.84 | 0.41 | 2.44 | 0.51 | 2.51 | 0.56 | 2.31 | 0.51 | 1.96 | 0.44 | 11.06 | 2.46 |
| 200 mg. t.i.d.** | 2.14 | 0.36 | 2.49 | 0.42 | 2.82 | 0.47 | 2.54 | 0.42 | 2.28 | 0.38 | 12.27 | 2.05 |
| Pt. No. 2 | | | | | | | | | | | | |
| 200 mg. q.i.d.*** | 2.19 | 0.28 | 2.46 | 0.31 | 2.99 | 0.37 | 2.84 | 0.36 | 2.56 | 0.32 | 13.04 | 1.64 |

*—22 days.

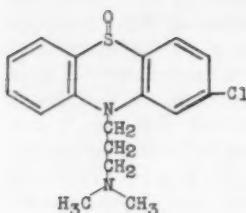
**—17 days.

***—16 days.

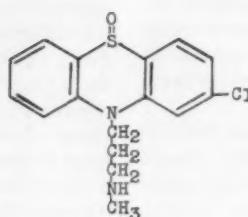
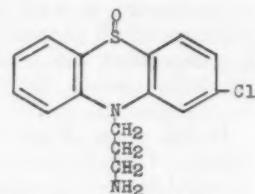
FIGURE 1
Structures of Chlorpromazine and its Sulfoxides



Chlorpromazine



Chlorpromazine sulfoxide

Nor₁-chlorpromazine sulfoxide

Norg-chlorpromazine sulfoxide

the mean for any patient was 10%. This figure was utilized for estimating the total urinary output. This in turn was utilized for calculating the excretion of free chlorpromazine and its sulfoxides for each day. The control run of 24-hour urine output and creatinine determination was repeated at different seasons of the year to account for any seasonal fluctuation of urine output. The creatinine levels were determined in an "autoanalyzer." The average deviation from the mean value ranged from 2.46 to 6.87%.

In the analysis of the urine for chlorpromazine sulfoxide (CP and CPO respectively) a series of preliminary steps had to be taken: the development of a quantitative method for chlorpromazine and chlorpromazine sulfoxide in urine, and the determination and identification of CP and CPO in the urine of patients receiving chlorpromazine.

Method for estimation of total CP and CPO in urine. Various quantities of CP in normal urine were prepared and samples of 1 ml. of the mixture were adjusted to pH 12 and extracted with 12 ml. C₆H₆. After being centrifuged, the C₆H₆ layer was separated.

To 10 ml. of the C₆H₆ extract, 3 ml. of As₂O₅ (saturated in concentrated HCl) reagent (27) was added. The purple color which developed was read within 10 minutes in a Beckman DU spectrophotometer at 575 m μ . The color density followed Beer's law. The color produced by the As₂O₅ reagent fades slowly on standing at room temperature, but there is less than 2% change in 10 minutes.

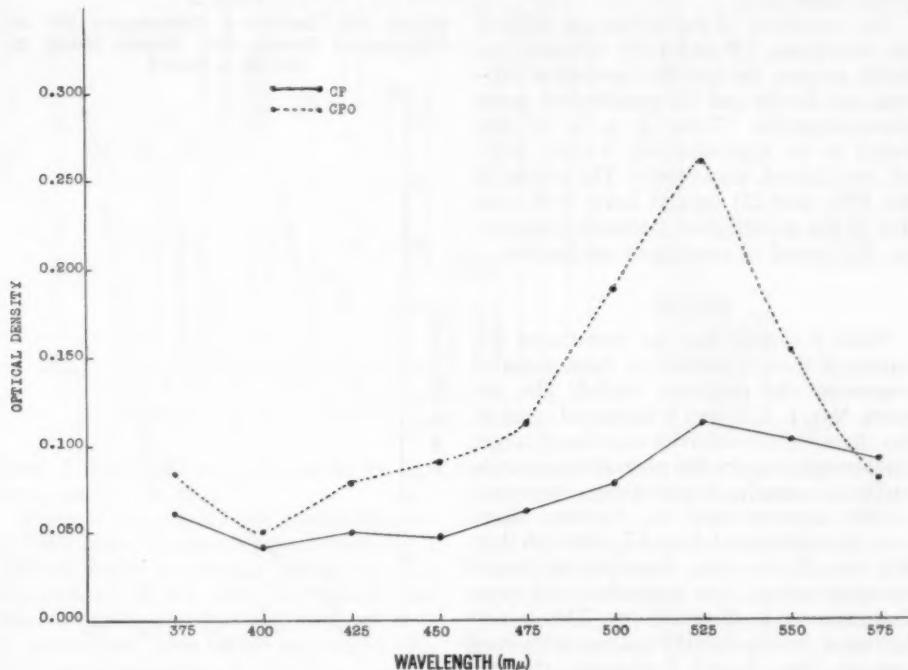
Differential method (modified method of Salzman and Brodie(18)). It was found that this method could be refined by carrying it out at pH 12 and utilizing CCl₄ for extracting CP and CPO. When C₆H₆ is used as an extracting solvent, turbidity often developed after shaking the C₆H₆ extract with 50% H₂SO₄. Another advantage utilizing CCl₄ was that it yielded an extraction of CP and CPO of approximately 96%. Standard curves were made using mixtures of various quantities of CP and CPO in normal urine. A sample of 3 ml. of the mixture was adjusted to pH 12. The mixture was extracted with 12 ml. CCl₄. After being centrifuged, the urine layer was removed. Ten ml. of the CCl₄ layer were placed in a test tube and

extracted with 2 ml. 0.2M sodium acetate buffer pH 5.6(16) and centrifuged. To 1.5 ml. of the buffer extract (contains CPO) 1.5 ml. of concentrated H_2SO_4 was added with cooling. The pink color which developed was read in a Beckman DU spectrophotometer at 525 m μ . To 8 ml. of the CCl_4 layer (containing free CP) 3 ml. of 50% H_2SO_4 was added, shaken and centrifuged. The resulting light pink color in the acid layer was read as above. The optical density vs. concentrations was plotted on a graph paper. The colors followed Beer's law. The absorption curves of CP and CPO obtained from patients' urines are shown in Figure 2.

the second solvent system, n-butanol-acetic acid-water (4:1:1).

The CCl_4 layer described above contained unchanged chlorpromazine only (R_f , 0.96). Four spots (S_1-S_4) were found on two-dimensional paper chromatograms of the acetate buffer extract. From the R_f value and mixed chromatograms with authentic specimens, 3 spots were tentatively identified to be chlorpromazine sulfoxide (S_2 , R_f , 0.86), nor₁-chlorpromazine sulfoxide (S_3 , R_f , 0.80) and nor₂-chlorpromazine sulfoxide (S_4 , R_f , 0.75) (Figure 1). The S_1 was very faint and its nature has not yet been identified. All these 4 spots failed to

FIGURE 2
Absorption Curves of CP and CPO in Patients' Urine



Paper Chromatography. It was found that a more sensitive and specific method for the determination of individual metabolites could be performed using paper chromatography. Two-dimensional ascending paper chromatograms were developed on Whatman 3MM paper with the first solvent system, ethanol-n-butanol-water (2:5:5) and

produce color with $FeCl_3$ solution. The R_f values of these 4 compounds did not change after being treated with bacterial β -glucuronidase in a neutral medium at 37° C for 24 hours, and the chromatogram of the hydrolysate did not produce color with ammoniacal $AgNO_3$ reagent. The proportion of S_4 was found to be larger than S_3 and S_2 .

on the chromatograms. This technique was developed into a quantitative one-dimensional method for the analysis of urinary CP and CPO. Paper chromatograms of 0.3 ml. specimens of mixtures of various quantities of CP and CPO in normal urine were developed with the solvent system ethanol-n-butanol-water (2:5:5) by ascending technique. The chromatograms were dried and sprayed with 50% H₂SO₄ to develop color. Approximately one inch squares including the spots of CP and CPO were cut out, extracted with 3.5 ml. of 50% H₂SO₄ and filtered. The acid extracts thus obtained were read in Bausch and Lomb "spectronic 20" at 525 m μ . The details of the quantitative paper chromatographic analysis of the urinary chlorpromazine metabolites will be reported later (26).

The sensitivity of the techniques utilized for identifying CP and CPO by using the As₂O₅ reagent, the modified method of Salzman and Brodie and the quantitative paper chromatography (Table 3, a, b, c) was found to be approximately 3.0/ml., 1.3/ml. and 1.0/ml. respectively. The results of the FPN test (23) agreed fairly well with that of the quantitative determinations during the period of continuous medication.

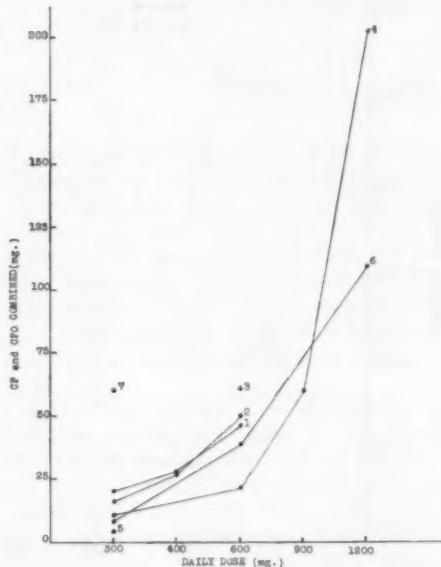
RESULTS

Table 1 reveals that the patterns of behavior of these 7 patients in their states of regression and remission varied. The patients Nos. 1, 2, 3, and 6 displayed some of the characteristic behavior considered target symptomatology for the phenothiazine tranquilizers, namely, hyperactivity, hyperirritability, aggressiveness and hostility. However, patients Nos. 4, 5, and 7, although they did not display the characteristic target symptomatology, also responded with some improvement to drug therapy. This is also indicated by the MSRPP ratings with only patients Nos. 5 and 6 showing changes which appear significant by inspection.

The drug free interval ranged from 3 to 27 weeks. The constancy of this interval for each patient is being investigated at the present time by exposing the patients to repeated courses of drug therapy followed by drug free intervals, in conjunction with continuing metabolic studies to be reported later.

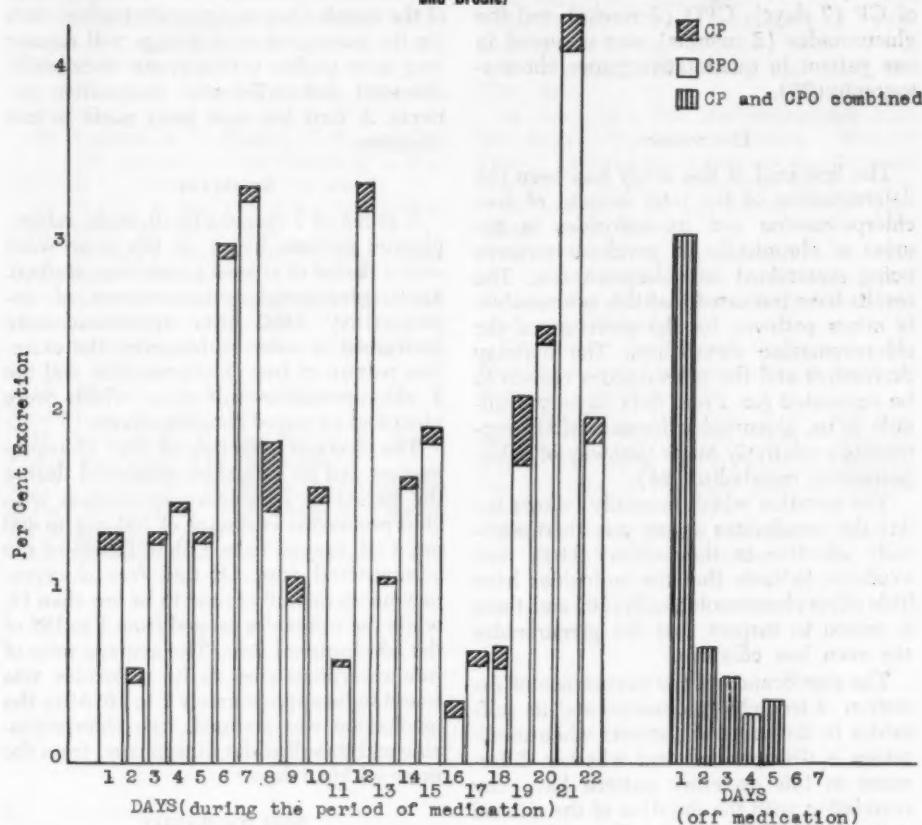
Table 2 indicates the excretion of chlorpromazine and its sulfoxides at different dosage levels and the relationship of these in the individual patient. It will be noted that 3 different techniques were utilized in making these determinations. In sequence these were: the use of the As₂O₅ reagent, the modified method of Salzman and Brodie, and quantitative paper chromatography. These developments increased the sensitivity to a point where the presence of 1 gamma of the free CP or CPO per ml. of urine could be measured with a maximum error of 15%. It was also reassuring to find that all 3 methods tended to yield approximately the same type of information as indicated in Figure 3.

FIGURE 3
Average Daily Excretion of Chlorpromazine (CP) and Chlorpromazine Sulfoxide (CPO). Numbers Identify the Patients in Table 3



The single daily urine specimen obtained at the period of nearly maximum excretion contained an amount of chlorpromazine ranging from 0.25 to 14.80 mg. The CPO ranged from 3.35 to 188.10 mg. at the dosage levels employed in this study, which range from 300 to 1200 mg. daily. The ratio of CP and CPO was found to vary each day (Figure 4); however, the average ratio of

FIGURE 4
Daily Excretion of CP and CPO, and the Duration of Excretion After the Discontinuation of Oral Medication of 300 mg. t.i.d. in One Patient (No. 1) (Specimens Were Analyzed by the Modified Method of Salzman and Brodie)



these 2 metabolites was found to be approximately 1 to 16.

It would thus appear that in approximately 3,600 urine specimens tested from the 7 patients under continuous medication, the excretion of CP was very low, usually less than 1% of the administered dose which is in agreement with other reports(14, 16). The rate of excretion of CPO was found to be between 1 to 18% of the administered dose. It would also appear that the excretion of CP and CPO is not proportional to the dosage.

The urines of patients Nos. 1 and 2 were collected at fixed intervals during the day to determine the period of maximum excretion (Table 3). It will be noted that the highest total excretion of chlorpromazine

was found in the third specimen (4:30 p.m.) collected a half hour after the third dose.

As will be reported in detail later, it was found that the major portion of the metabolites being excreted was in the form of glucuronides(24) which disagrees with the results of Berti and Cima(14) who reported that 90% of the metabolites consisted of sulf-oxides in man.

No attempt is made to present the data on the excretion of the metabolites following the termination of drug therapy since this is still under study and is being repeated through a series of drug free phases. In a preliminary study, as indicated in Figure 4, the urinary excretion of CP and CPO continued for an average of 4 to 5 days after the

discontinuation of the medication while the other metabolites could be detected for 7 to 8 days. Much longer duration of excretion of CP (7 days), CPO (3 weeks) and the glucuronides (2 months) was observed in one patient in quantitative paper chromatography (26).

DISCUSSION

The first goal of this study had been the determination of the total amount of free chlorpromazine and its sulfoxides in the urine of chronically ill, psychotic patients being maintained on chlorpromazine. The results have indicated that this is a relatively minor pathway for the excretion of the chlorpromazine metabolites. The hydroxy derivatives and the glucuronides remain to be accounted for. From data already available to us, glucuronide formation (24) represents a relatively major pathway of chlorpromazine metabolism (24).

The question which naturally follows is : Are the metabolites in any way therapeutically effective in themselves ? Data now available indicate that the sulfoxides have little effect pharmacologically (16) and there is reason to suspect that the glucuronides are even less effective.

The significance of the persistence of excretion of free chlorpromazine and its sulfoxides in the urine of patients when medication is discontinued and whether differences in this excretory pattern have any correlation with the duration of the clinical remission is under study. From the very preliminary information now available no definite trend or direction can be noted. The pattern of chlorpromazine metabolites excreted in the urine is being studied during repeated phases of on and off medication.

Whether these patients will behave consistently during the drug-free periods is also under study particularly in relation to personality structure and environmental happenings. Despite these considerations the variables relating to the metabolic process must be clearly defined before these other issues can be dealt with more definitively. The difficulties in correlating psychometric studies such as the MSRPP with clinical changes and the determination of end points emphasize the fact that there are no objective criteria for psychiatric alterations ex-

cept of the most marked type. Whether end points can be determined more effectively and at earlier periods and whether a study of the metabolites may provide further clues for the management of dosage will require long term studies with a group of carefully observed and sufficiently cooperative patients. A start has now been made in this direction.

SUMMARY

A group of 7 chronically ill, male, schizophrenic patients living on the same ward over a period of at least a year were studied. Spectrophotometric measurements of approximately 3,600 urine specimens were performed in order to determine the excretion pattern of free chlorpromazine and the 3 chlorpromazine sulfoxides which were identified on paper chromatograms.

The average excretion of free chlorpromazine and its sulfoxides combined during the period of continuous medication with chlorpromazine at dosage of 100 mg. to 400 mg. t.i.d. ranged from 1.31 to 20.54% of the administered dose. Of this, free chlorpromazine was usually found to be less than 1%, while the sulfoxides ranged from 1 to 18% of the administered dose. The average ratio of free chlorpromazine to its sulfoxides was found to be approximately 1 to 16. After the medication was stopped, free chlorpromazine and its sulfoxides disappeared from the urine within 5 days.

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A FURTHER STUDY OF SOME FEATURES OF THE INTERVIEW WITH THE INTERACTION CHRONOGRAPH

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The search for adequate methods of objectively assessing changes in behavior is an old problem among psychological investigators. The use of the interview as an instrument of assessment has been lauded because of its obvious flexibility and uniqueness. It has also been severely criticized because of its frequent unreliability. The corollary difficulty of finding a suitably precise instrument to record clinical interviews has also posed a challenge for researchers in the field. The development, by Chapple, of the interaction chronograph(1) and his introduction of the standardized interview(2) suggested a way for some answers to these problems. The basis of Chapple's interaction method is an analysis of the time variable during the interview. After considerable work in this field, Chapple arrived at his conclusion that time was an important variable for describing human relations. He suggested that : "... if we want to predict how people will act, the way to do it is to watch how they do act and not to infer their behavior from what they say without any means of observational check." He further emphasized that personality can be assessed without recourse to intra-psychic and other psychodynamic formulations, and that this assessment involves merely the process of observing the time relations in the interaction patterns of individuals. He indicated that this method, because of its objectivity, can lead to a science of personality. This view is consistent with MacKinnon's conclusion that the most promising approach to personality assessment will come from a "field theory" which gives sufficient weight both to "organismic" factors (the individual's behavior) and the "situational" or "field"

(which involves the other interactees) variable(5). It is significant to note that Sarason (and others) have attempted to view the Rorschach Test in a similar manner and have emphasized the examiner-subject relationship and the effects of this on the subject's productions(11).

There have been a series of reports dealing with the interaction chronograph. A history of the development of various early forms of this instrument will be found in the paper by Chapple(1). Essentially the interaction chronograph, which records certain temporal aspects of verbal and gestural interactions, is nothing more than a very elaborate stop watch. The device allows the observer to record, in time units with a high degree of precision, the behavioral interaction (exclusive of content of the verbalizations) of two individuals. The variables, definitions of which are given in Table 1,

TABLE 1
Definitions of the Interaction Variables

-
1. Pt.'s Units : The number of times the patient acted.
 2. Pt.'s Action⁺ : The average duration of the patient's actions.
 3. Pt.'s Silence⁺ : The average duration of the patient's silences.
 4. Pt.'s Tempo⁺ : The average duration of each action plus its following inaction as a single measure.
 5. Pt.'s Activity⁺ : The average duration of each action minus its following inaction, as a single measure.
 6. Pt.'s Adjustment⁺ : The durations of the patient's interruptions minus the durations of his failures to respond, divided by Pt.'s Units.
 7. Interviewer's Adjustment⁺ : The durations of the interviewer's interruptions minus the durations of his failures to respond, divided by Pt.'s Units.
 8. Pt.'s Initiative : The percent of times, out of the available number of opportunities (usually 12) in Period 2, in which the patient acted again (within a 15-sec. limit) following his own last action.
 9. Pt.'s Dominance : The number of times

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(out of 12) in Period 4 that the patient "talked down" the interviewer minus the number of times the interviewer "talked down" the patient, divided by the number of Pt.'s Units in the Period.

10. *Pt.'s Synchronization*: The number of times the patient either interrupted or failed to respond to the interviewer, divided by the number of Pt.'s Units.

11. *Interviewer's Units*: The number of times the interviewer acted.

12. *Pt.'s Quickness*⁺: The average length of time in Period 2 that the patient waited before taking the initiative following his own last action.

13. *No. of Interruptions*: The number of times one interactee interrupted the other during the total interview (or a period thereof).

14. *Length of Interview*: The duration of the interview in min.

⁺ Values for these variables are recorded in hundredths of a min. To convert to sec. multiply the given value by 0.6.

are objectively recorded by an observer who activates a series of electrically controlled counters which are connected to two keys, one for the interviewer, the other for the subject. Each key is depressed by the observer whenever the designated individual is talking, nodding, gesturing, or in other ways communicating (interacting) with the second person. Values for these variables can be abstracted from the printed record of the total interview with little difficulty. Some of these variables may seem unusually arbitrary, since they represent algebraic sums of two variables rather than individual measures of each of these variables. Chapple, in developing his interaction theory of personality, considered these derived variables more useful than the first-order variables from which they were obtained. In

addition to containing individual counters for each variable, the interaction chronograph has a "signal" counter which, when pressed by the observer after a pre-arranged signal from the interviewer, functions as a marker to record the start of different periods of the interview.

In his early study of interaction patterns during interviews, Chapple placed little restriction upon the interviewer other than that he should use a non-directive interview of the type described by Rogers(10). He soon discovered, however, that every interviewer was different not only in the way he behaved but in the results that he obtained from the same subject. Evidence for this very important point is provided in several reliability studies done by Chapple (2), and by Goldman-Eisler working independently in England(3).

They found that the use of the interaction chronograph for the objective assessment of patient personality patterns is made more difficult by the differences in "interaction patterns" (or "personalities") of different interviewers. These studies have shown that the differences in inter- and intra- interviewer interaction patterns have a subtle but marked effect on the interviewee's interaction patterns when these are carefully and objectively recorded. These experimental results thus have helped to define some of the uncontrolled variance which in the past has made the interview, including the interviewer's behavior, unreliable.

The need for some control or standardization of the interviewer's behavior if the clinical interview is to be used as a research tool is obvious. Accordingly Chapple suggested some rules to guide the interviewer's

TABLE 2
Characteristics of the Standardized Interview

| PERIOD | TYPE OF INTERVIEWING | DURATION OF PERIOD | |
|--------|-------------------------|--------------------|---|
| | | FIXED DURATION | VARIABLE DURATION |
| I | Free | 10 Min. | |
| II | Stress (silence) | | 12 failures to respond, or 15 min. whichever is shorter |
| III | Free | 5 Min. | |
| IV | Stress (interruption) | | 12 interruptions, or 15 min., whichever is shorter |
| V | Free | 5 Min. | |
| Total | | 20 Min. plus | a maximum of 30 more min. |

behavior(2). In addition, by prescribing that the interviewer behave in a number of different specified ways as the interview proceeds, it was possible to sample a larger portion of the interviewee's repertoire of responses. The standardized interview is divided into 5 periods. The characteristics of the standardized interview are shown in Table 2 and the "rules" governing the interviewer's behavior are given in Table 3.

TABLE 3
Standardized Interviewer's Behavior :
Rules for Interviewer

Periods 1 to 5 (all periods)

a. Interviewer introduces each period by a 5-sec. utterance (following his signal to the observer).

b. All interviewing must be non-directive. No direct questioning, no probing or depth interviewing. Interviewer can reflect, ask for clarification, ask for more information, introduce a new topic area, etc. In general, interviewer's comments should be non-challenging and open-ended and related to the patient's past comments or to some new, general topic.

c. All interactions must be verbal only, or verbal and gestural at the same time; i.e., interviewer cannot use head nods and other gestures alone. This rule simplifies the observer's task.

d. All of interviewer's utterances must be of approximately 5 sec. duration.

e. After patient finishes a comment or other interaction, interviewer must respond in less than 1 sec., except as otherwise noted in Periods 2 and 4.

f. Each time patient interrupts interviewer, the latter must continue to talk for 2 more sec. This rule insures more explicit definition of a patient's ascendance-submission pattern than would be possible if interviewer "submitted" immediately.

g. After interviewer has been silent for 15 sec. (and patient has not taken initiative) interviewer makes another 5-sec. comment.

Periods 1, 3, and 5

a. Interviewer must never interrupt patient.
b. If after interviewer makes a comment patient does not respond, interviewer must wait 15 sec. and then speak again for 5 sec.

Period 2 only

a. Interviewer must "fail to respond" to last interaction of patient a total of 12 times (or period 2 should last for 15 min., whichever is shorter.)

Period 4 only

a. Each time patient acts, interviewer must

interrupt patient for 5 sec. for a total of 12 times.

b. Interviewer's interruption should begin about 3 sec. after patient has begun his interaction.

c. After having interrupted patient, if the patient continues through the interruption (does not submit), interviewer will not interrupt again until patient has finished his utterance, i.e., interviewer will interrupt patient only once during each utterance of the latter if patient does not "yield."

d. The period is ended after 12 interruptions or 15 min. of attempting to obtain these.

A number of reliability studies have been published dealing with several aspects of the standardized interview.

OBSERVER RELIABILITY

A study reported by Phillips, et al.(9) utilized one highly experienced observer and another observer with only minimal experience. They independently and simultaneously observed the same 17 interviews. From their results it is clear that the observation and recording patterns during the standardized interview are highly reliable. The findings in this study served to indicate that the observer's task is largely a mechanical one once he has read, understood, and practiced the published rules.

SCORER RELIABILITY

The interaction chronograph yields cumulative scores on the several variables, and thus scoring, which involves primarily simple arithmetic skills, is a reasonably objective procedure. Saslow, Matarazzo and Guze(14) reported the scores of 2 scorers who followed Chapple's manual of instructions. They scored independently the interaction chronograph records of 10 standardized interviews selected at random. The results indicated perfect agreement between the 2 scorers on 96% of the 600 individual final scores involved. The magnitudes of the errors involved in the remaining 4% were very minimal and they were of the order of 1 unit in whole number scores and .06 in those variables measured in hundredths of a minute. Thus it would appear that scorer reliability presents no problem in these observations.

INTERVIEWER RELIABILITY

Because of the nature of the standardized interview itself, interviewer and interviewee performance are mutually dependent and thus the question of the reliability of the interviewer's standardized performance (the independent variable) is confounded with that of the interviewee's performance (the dependent variable). Thus the patient, free to manifest his individuality, sets the pattern both for content and temporal characteristics, while the interviewer must follow him, imposing only the predefined constraints set forth in Tables 2 and 3. Saslow and Matarazzo(12) however made indirect approaches in assessing the reliability of each participant. Their statistical data gave evidence that the interviewer is able both to learn and to follow the rules of the standardized interview to a reasonably high degree.

INTERVIEWEE RELIABILITY

There are 3 published studies concerning this aspect of the method. The first study (14) revealed that the interviewee interaction variables for any given subject are quite stable across 2 different interviewers, when the latter standardized their interviewing behavior (without standardizing the content of their interviews). At the same time, it was demonstrated that the variables are modifiable by planned changes in the intra-interview behavior of each interviewer. A second study(6) replicated the general stability and specific modifiability of interviewee interaction patterns which were found in the first sample of subjects. The second study used a different series of subjects. In a third study(13), the stability and modifiability were again shown when only a single interviewer was used and the test-retest interval was extended to 7 days. The first 2 studies employed a test-retest interval of a few minutes.

With the demonstration of observer, scorer, interviewer and interviewee reliabilities, we turned our attention to the question of the validity of some facets of the interview technique. It has been noted earlier that all the studies described previously were based upon the use of the standardized interview. This contains several sub-periods during which the interviewer's behavior varies in accordance with certain rules

(Table 3). This is in order to control for the known effect on the subject's interaction chronograph responses if the interviewer's behavior varies, as pointed out previously by Goldman-Eisler(3). Since the standardized interview involves complex behavior patterns on the part of the interviewer, the present study concerned itself with the more simple sub-period of the interview. In this study, we limited ourselves to interviews using the behavior of the "free" period, or the Period I type of interviewing. In this period, the interviewer tries to make his utterances as non-directive as possible, approximately 5 sec. long each time, without either interrupting the subject or delaying his response more than half a second.

On the basis of his experience, Chapple selected a duration of 10 min. under baseline condition as representative of a subject's behavior during a nonstressful interaction (Period I). Guze and Mensh(4) studied this question further. Their findings with 19 subjects suggested that the variation within any single 30-min. interview between successive 10-min. intervals of Period I type behavior might be too great to justify selecting 10 min. as a baseline for comparison with other intervals.

We decided to repeat this study with a larger group of subjects and to further evaluate the reliability of a 30-min. Period I type interview using one interviewer, and a 7-day test-retest interval. Ultimately our research plan involves the assessment of the changes in interaction patterns following the administration of controlled doses of drugs. A reliable baseline measure is therefore of utmost importance for this purpose.

METHOD

The present study was initiated after 3 experienced interviewers and an observer practiced the interview technique and observing respectively. The research design called for interviewing 50 white patients randomly selected from the Washington University psychiatry clinic. They were all new patients in the clinic or had not been seen for at least a year. There were 30 males and 20 females, ranging in age from 17 to 72. The presenting problems were typical of the outpatient clinic population. Diagnostically, there were 13 cases of anxiety neurosis,

acute and chronic; 8 cases of hysteria (conversion reaction); 10 cases of depression of the manic-depressive variety; 4 cases of schizophrenia; 10 cases of personality disturbances; 2 cases of chronic brain syndrome; 1 case of chronic alcoholism; 1 case of drug addiction; and 1 case without any obvious clinical psychiatric difficulty.

The interviews were conducted on one side of a one-way vision screen with the observer on the other side to activate the apparatus. Each patient was subjected to a 30-min. interview of Period I type behavior (Table 2). Each patient returned a week later for a similar interview.

Nearly all the previous work dealing with the interaction chronograph in the study of interview interaction has depended upon the use of equipment rented from the E. D. Chapple Co. One of the major advantages to using Chapple's machine is the fact that many of the calculations based upon the basic, observational data are handled automatically and cumulatively. Since we were not interested, however, presently in many of Chapple's second order variables which were based upon various combinations of the basic elements of the interaction, we worked out a satisfactory alternative to Chapple's apparatus.

After experimenting with different kinds of recorders, we selected a 5-channel Esterline-Angus. It uses standardized paper in relatively inexpensive rolls which come ruled in various time intervals. By selecting an appropriate gear ratio, we can run the recorder so that the paper is moved at 3" per min. Using paper No. 1705-C, we found that this provides ruled lines at 2-sec. intervals with heavier lines at 10-sec. intervals and still heavier lines at 60-sec. intervals. These lines are 1/10", 1/2" and 3" apart respectively. The ink line can be read to the nearest second. The record, using this apparatus, consists of 3 continuous synchronous parallel ink tracks, one for the patient, one for the interviewer and a signal track. The appropriate pen is deflected about 1/10" whenever the corresponding key on a small key-box is depressed by the observer to indicate that the designated individual is interacting during the interview. At the conclusion of the interview, the relevant chronograph variables are extracted from

the record: the number of times the patient interacts (units), the duration of the interaction (action) and the duration of the silence (silence).

STATISTICAL ANALYSIS

Both Spearman rank correlation coefficient (ρ) and Pearson product moment correlation coefficients (r) were used. Previous studies (6, 13, 14) suggested that ρ is the more appropriate statistic for this type of data in view of the concomitant problems of extremely narrow ranges, limited frequencies, and some occasional asymmetrical distribution of the scores. Values for r are thus included in the tables only for purposes of comparison.

RESULTS AND DISCUSSION

The total number of units, mean action, and mean silence and their standard deviations are presented for each subject for both interviews in Table 4. The units ranged from 1 to 69 in the first interview, and 1 to 81 in the second interview. The mean actions ranges from 11 sec. to 1800 sec. (or 30 min.) in the first interview, and 17 sec. to 1800 sec. in the second interview. The mean silences ranged from 4.6 sec. to 12.1 sec. in the first interview, and 4.9 sec. to 10.1 sec. in the second interview. There are no standard deviations for the following: the mean silence period of the second interview for subject 14; the mean action period of the second interview, and the mean silence period of the first and second interview for subject 36; the mean silence period of the second interview for subject 44; and the mean action period and mean silence periods of the first and second interview for subject 47. This is because these subjects interacted or were silent only once.

As mentioned earlier, this study confined itself to consideration of only a part of the standardized interview. A major part of the statistical testing therefore was confined to the analysis of the "action" scores. The "silence" variable was not subjected to detailed analysis because inspection revealed a very limited range in the scores for this variable, making statistical analysis of little usefulness. The reason for this can be attributed to the character of the interview itself. In all cases, the maximum time an

TABLE 4
Total Number of Units, Mean Actions, and Mean Silences and Their Standard Deviations for Each Subject
N=50
 $(\text{All Values are Given in Sec.})$

| PATIENT NO. | N ₁ | N ₂ | ACTION ₁ | ACTION ₂ | SILENCE ₁ | SILENCE ₂ | ACTION _{SD₁} | ACTION _{SD₂} | SILENCE _{SD₁} | SILENCE _{SD₂} |
|-------------|----------------|----------------|---------------------|---------------------|----------------------|----------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| 1 | 56 | 80 | 24 | 17 | 5.6 | 4.9 | 15.9 | 25.2 | 2.0 | 2.2 |
| 2 | 19 | 19 | 87 | 88 | 7.7 | 6.6 | 62.8 | 36.0 | 3.1 | 1.6 |
| 3 | 22 | 18 | 72 | 87 | 8.0 | 9.6 | 66.4 | 53.4 | 4.0 | 5.8 |
| 4 | 15 | 22 | 123 | 78 | 5.9 | 6.1 | 33.4 | 77.5 | 2.0 | 1.4 |
| 5 | 44 | 40 | 32 | 36 | 9.3 | 10.1 | 28.2 | 42.7 | 4.1 | 7.5 |
| 6 | 51 | 46 | 28 | 34 | 6.8 | 6.6 | 30.0 | 31.0 | 3.6 | 2.6 |
| 7 | 33 | 32 | 51 | 50 | 6.4 | 5.8 | 37.9 | 26.6 | 1.6 | 2.3 |
| 8 | 61 | 48 | 24 | 32 | 6.2 | 6.5 | 19.2 | 25.4 | 2.5 | 2.1 |
| 9 | 64 | 73 | 22 | 20 | 6.1 | 5.5 | 21.8 | 19.6 | 1.9 | 2.4 |
| 10 | 6 | 5 | 307 | 388 | 6.6 | 7.0 | 125.5 | 176.6 | 2.3 | 5.1 |
| 11 | 13 | 21 | 140 | 78 | 6.6 | 9.1 | 97.6 | 68.8 | 1.4 | 3.2 |
| 12 | 20 | 15 | 84 | 115 | 7.7 | 7.1 | 66.7 | 61.6 | 2.7 | 2.1 |
| 13 | 26 | 23 | 61 | 73 | 6.6 | 7.7 | 51.6 | 44.9 | 2.6 | 3.7 |
| 14 | 7 | 2 | 247 | 902 | 7.0 | 8.0 | 271.5 | 517.0 | 2.0 | |
| 15 | 77 | 70 | 11 | 20 | 5.2 | 6.0 | 12.8 | 12.2 | 2.6 | 2.6 |
| 16 | 27 | 17 | 70 | 100 | 7.1 | 6.7 | 79.2 | 76.9 | 2.1 | 2.0 |
| 17 | 10 | 12 | 149 | 147 | 5.1 | 6.9 | 211.1 | 108.8 | 4.2 | 1.8 |
| 18 | 58 | 39 | 25 | 39 | 6.1 | 7.3 | 13.3 | 21.4 | 2.6 | 2.6 |
| 19 | 10 | 12 | 162 | 157 | 8.4 | 6.5 | 220.0 | 46.5 | 5.7 | 2.1 |
| 20 | 4 | 4 | 462 | 426 | 11.3 | 8.3 | 261.0 | 402.0 | 4.1 | 1.2 |
| 21 | 35 | 53 | 46 | 27 | 6.6 | 7.7 | 27.4 | 12.3 | 1.1 | 1.8 |
| 22 | 13 | 11 | 138 | 158 | 6.4 | 9.5 | 110.9 | 87.8 | 1.4 | 2.6 |
| 23 | 27 | 28 | 62 | 58 | 6.5 | 7.3 | 34.7 | 40.1 | 2.1 | 1.7 |
| 24 | 13 | 19 | 136 | 89 | 6.9 | 9.4 | 80.5 | 39.6 | 1.4 | 2.8 |
| 25 | 6 | 8 | 240 | 219 | 5.8 | 5.7 | 147.2 | 142.0 | 1.3 | 1.0 |
| 26 | 69 | 31 | 19 | 51 | 6.2 | 6.4 | 13.0 | 34.2 | 2.3 | 2.0 |
| 27 | 37 | 41 | 41 | 40 | 5.0 | 5.4 | 21.4 | 14.6 | 1.0 | 1.3 |
| 28 | 65 | 69 | 21 | 20 | 7.5 | 7.1 | 8.3 | 12.6 | 1.7 | 1.7 |
| 29 | 7 | 9 | 288 | 217 | 8.8 | 6.0 | 224.8 | 249.0 | 3.0 | .7 |
| 30 | 16 | 25 | 110 | 62 | 8.1 | 5.6 | 89.5 | 41.3 | 3.1 | 1.6 |
| 31 | 35 | 19 | 47 | 94 | 6.8 | 8.9 | 42.2 | 76.7 | 3.7 | 4.9 |
| 32 | 10 | 12 | 170 | 154 | 6.0 | 5.1 | 85.9 | 98.9 | 1.7 | 1.3 |
| 33 | 28 | 21 | 60 | 85 | 6.1 | 6.2 | 60.5 | 78.8 | 1.4 | 2.0 |
| 34 | 27 | 15 | 68 | 120 | 6.5 | 6.8 | 63.1 | 105.6 | 3.2 | 2.4 |
| 35 | 5 | 13 | 421 | 150 | 8.8 | 5.8 | 258.8 | 83.5 | 1.7 | 1.5 |
| 36 | 8 | 1 | 227 | 1800 | 8 | 5.0 | 490.5 | | | |
| 37 | 31 | 16 | 52 | 104 | 6.1 | 7.3 | 30.9 | 41.9 | 1.5 | 1.5 |
| 38 | 32 | 19 | 50 | 105 | 7.2 | 7.1 | 50.1 | 122.3 | 1.5 | 1.6 |
| 39 | 67 | 81 | 20 | 18 | 7.9 | 6.9 | 10.2 | 11.4 | 2.6 | 2.6 |
| 40 | 20 | 20 | 88 | 90 | 12.1 | 6.2 | 61.8 | 71.4 | 1.8 | 1.4 |
| 41 | 25 | 39 | 62 | 40 | 8.2 | 7.7 | 78.2 | 35.9 | 1.9 | 2.2 |
| 42 | 29 | 29 | 60 | 55 | 8.0 | 7.8 | 98.6 | 46.3 | 2.0 | 2.1 |
| 43 | 38 | 37 | 41 | 40 | 7.5 | 9.3 | 28.0 | 33.4 | 1.2 | 4.9 |
| 44 | 3 | 2 | 573 | 967 | 7.5 | 7.0 | 199.3 | 547.5 | .5 | |
| 45 | 46 | 49 | 40 | 31 | 6.4 | 5.7 | 23.4 | 19.5 | 2.1 | 1.4 |
| 46 | 9 | 6 | 205 | 364 | 7.7 | 7.2 | 133.7 | 689.2 | 3.2 | 1.4 |
| 47 | 1 | 1 | 1800 | 1800 | 5.0 | 5.0 | | | | |
| 48 | 12 | 5 | 150 | 367 | 4.6 | 5.2 | 173.8 | 253.0 | 4.6 | 4.7 |
| 49 | 25 | 32 | 56 | 49 | 8.0 | 7.6 | 41.5 | 10.1 | 1.8 | 1.3 |
| 50 | 11 | 6 | 182 | 356 | 4.9 | 5.8 | 314.9 | 281.8 | 1.3 | 1.6 |

Rg = 1.69 1.81 11-1800 17-1800 4.6-12.1 4.9-10.1

Σ = 1373 1350 7683 10974 350.8 346

M = 27.5 27.0 153.6 115.5 6.98 6.94

σ = 20.1 17.2 266.9 141.9 1.5 1.3

interviewee can possibly be silent is 15 sec. (Table 3). It is therefore apparent that variations in the silence score are not likely to be striking.

According to the "rules" of the standardized interview (Table 3) no restrictions are placed on the length of the "action" period (the duration a patient talks). The subjects could vary in their behavior in this Period I type of interviewing so that the length of this period could range from, say, 1 sec. to 1800 sec.—the full 30 min. We arbitrarily assigned the duration of 1800 sec. to subjects that interacted once for the whole period. Such is the case in the second interview with subject 36 and in the first and second interview with subject 47. Analysis of the data in Table 4 will show that the scores are of an asymmetrical distribution. The distribution is graphically represented in the accompanying histogram (Graph 1).

The rank order correlations (ρ) and the Pearson correlation coefficients (r) for mean actions are shown in Table 5. $A_1-A_2-A_3-A_{1,2}-A_{1,2,3}$ represent mean actions in the first 10 min., second 10 min., third 10 min., first 20 min. and entire 30 min. respec-

tively of the first interview. B₁-B₂-B₃-B_{1,2}-B_{1,2,3} represent the same parts of the second interview. It will be noted that N is not 50 in each case. This is because in some patients, it was not possible to divide the full interviews into 10-min. sections since the subjects continued to talk beyond the 10-min. point.

Examination of the data in Table 5 shows the striking stability in the action variable from one interview to another conducted a week later. The correlations between the whole 30-min. interviews and the correlations between the successive 10-min. periods within a single interview are all highly significant. These results agree with the hypothesis that patients unfold their behavior during the course of a 30-min. interview in a way that is reliable from interview to interview, and that the behavior early in a given interview is very much like the behavior later in the same interview. The findings revealing the stability of the 10-min. period in this study is in contrast to an earlier observation previously noted(4). A re-analysis of the data (mean actions) in the previous study, however, revealed some significant points. Their data were found also

GRAPH 1
DISTRIBUTION OF SCORES IN 50 SUBJECTS
 (from Data in Table 4)

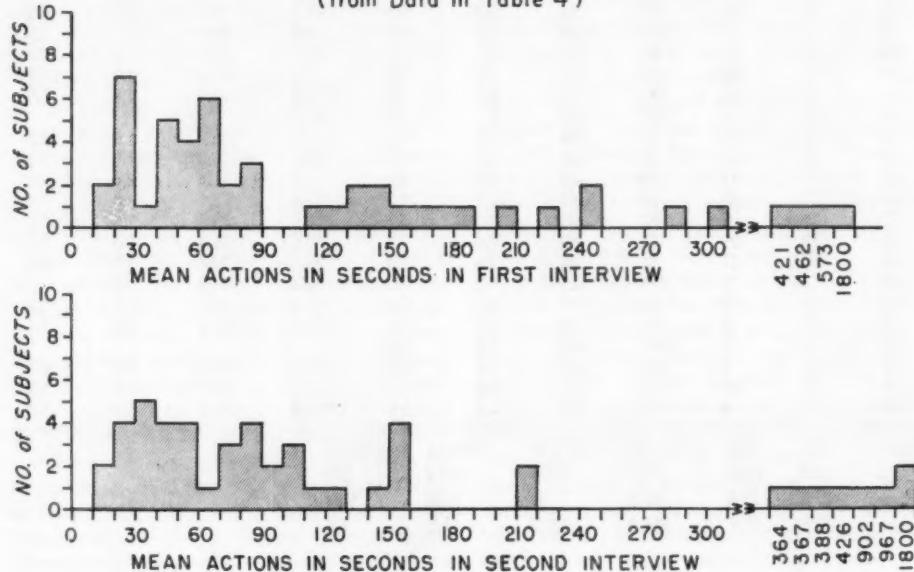


TABLE 5
Coefficients of Correlation for Patients' Action *

| FIRST INTERVIEW | SECOND INTERVIEW | NO. OF PTS. | r | rho |
|------------------|------------------|-------------|-------|-------|
| A ₁ | B ₁ | 38 | .621+ | .720+ |
| A ₂ | B ₂ | 38 | .546 | .762 |
| A ₃ | B ₃ | 38 | .430 | .741 |
| A ₁₂ | B ₁₂ | 38 | .634 | .797 |
| A ₁₂₃ | B ₁₂₃ | 50 | .718 | .903 |
| A ₁ | A ₂ | 40 | .882 | .802 |
| A ₂ | A ₃ | 40 | .631 | .828 |
| A ₁ | A ₃ | 40 | .544 | .700 |
| B ₁ | B ₂ | 41 | .718 | .980 |
| B ₂ | B ₃ | 41 | .427 | .843 |
| B ₁ | B ₃ | 41 | .425 | .823 |
| A ₁ | A ₁₂ | 40 | .933 | .945 |
| A ₁ | A ₁₂₃ | 40 | .901 | .882 |
| B ₁ | B ₁₂ | 41 | .924 | .805 |
| B ₁ | B ₁₂₃ | 41 | .890 | .768 |
| A ₁₂ | A ₁₂₃ | 40 | .936 | .949 |
| B ₁₂ | B ₁₂₃ | 41 | .951 | .979 |

* All values given in seconds.

+ All r's and rho's are significant at the .01 level.

to follow a skewed distribution. A rank order correlation, a more appropriate statistic than the Pearson *r* which was used, for the 10-min. periods in the other study showed values of .700, .722 and .839 for Periods 1 and 2, 1 and 3, and 2 and 3, respectively. These are all significant at the .01 level of confidence and compare favorably with our findings.

Reading across the rank order correlations in Table 5, one is struck by the consistently lower correlations obtained in comparing the successive 10-min. periods of the first interview with the correlations obtained between successive 10-min. periods

in the second interview. The reason for this difference is not apparent at present. That this is a function of true patient-stability as a result of interacting with the same examiner a second time is suggested as a tentative hypothesis. Our data do not provide the answer. Finally a word should be mentioned about the high value of the correlation coefficient obtained for the total interview. The rho of .903 for the full 30 min. is seen as the highest value obtained. This finding naturally suggests that the reliability increases proportionately as the number of observations increases.

Table 6 shows the data in 3 reliability

TABLE 6
Test-Retest—Interaction Variables—Total Standardized Interview
In 3 Series of Subjects Together with the Present Series

| SERIES | | UNITS | | ACTION | | SILENCE | |
|-------------------------|--------|-------|-----------|--------|------------|---------|---------|
| | | MEAN | RANGE | MEAN | RANGE | MEAN | RANGE |
| Original (20 Sx) | Dr. 1 | 72.20 | 25 to 127 | 48.20 | 13 to 154 | 9.10 | 4 to 19 |
| | Dr. 2 | 69.85 | 29 to 112 | 43.90 | 9 to 136 | 8.20 | 4 to 13 |
| | Rho | .807* | | .847* | | .854* | |
| Replication (20 Sx) | Dr. 1 | 68.30 | 39 to 132 | 44.15 | 12 to 93 | 9.10 | 5 to 18 |
| | Dr. 2 | 76.65 | 41 to 133 | 39.35 | 12 to 93 | 9.00 | 6 to 15 |
| | Rho | .917* | | .945* | | .859* | |
| Seven-day (20 Sx) | First | 72.30 | 43 to 118 | 34.55 | 5 to 86 | 9.75 | 6 to 24 |
| | Second | 78.30 | 48 to 131 | 34.05 | 9 to 73 | 9.30 | 6 to 15 |
| | Rho | .765* | | .597* | | .582* | |
| Present Study (N=50) | First | 27.5 | 1 to 77 | 153.6 | 11 to 1829 | 6.98 | 5 to 12 |
| | Second | 27.0 | 1 to 81 | 115.5 | 17 to 2036 | 6.94 | 5 to 10 |
| | Rho | .980* | | .903* | | .946* | |

* Significant at the .01 level.

studies reported previously. The results of the present study are given for comparison. The marked concordance of our findings with previous works is quite striking. The findings of much less variability (or more stability) of the 3 variables (units, actions, silences) in our series can be accounted for by several factors: firstly, our investigation dealt with a much larger sample (50 vs. 20); secondly, we utilized only the simple part of the standardized interview; and lastly, we extended the observation from 10 to 30 min.

SUMMARY

A brief review of the concepts and methods involved in the objective description and measurement of "personality" by means of interaction chronograph methods, together with a comment on previous studies, have been presented.

The present study was concerned with testing the reliability of 10-min. and 30-min. samples of Period I type behavior, following the rules of a partially standardized interview. Using interaction chronograph measures, it was concluded that 10 min. are sufficient to reach a stable pattern of patient communication under Period I conditions. It was established further that extending the period of observation to 30 min. offers a much more stabilized interaction.

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TREATMENT METHODS AND FASHIONS IN TREATMENT

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It seems that in the current practice of psychiatry, the fashion for almost every kind of nervous and mental disorder is pharmacotherapy. There are "psychotropic" and "neuroleptic" tranquilizers, energizers (can brain function be "energized"?), antidepressants, hallucinogenic chemicals, and other drugs, all representing the latest in psychiatric treatment.

But while the chemists produce more rings and side chains to the already existing compounds, perhaps we should take a second look at the impact of this new wave of pharmacological therapy on clinical practice. Fashions in medicine, as in clothes and cars, can lead too readily to a discard of the usable and useful. Proven therapeutic methods may be brushed aside for the sake of boarding the bandwagon. With such easy acceptance of newer agents no time is taken to evaluate their worth. This illusion of progress can be damaging as dubious rationalizations (needed to reinforce the illusion), often cover up failures in clinical judgment and integrity.

Psychiatrists today are pounded by impressive reprints of scientific articles, extravagant brochures, and eloquent detail men offering samples and promoting the therapeutic merits of various pharmacological products. For example, it is claimed that a certain antidepressant drug will "eliminate" or "reduce" the need for electroshock treatment (ECT), or serve as a useful alternative. The sales literature is replete with implications that ECT is to be avoided, that it is old-fashioned, and that it is almost contraindicated when compared to an available drug which can be prescribed in a convenient dosage regimen. Such an appeal (especially if the psychiatrist or other physician is not geared to administer ECT personally), is of course, very persuasive. Just have the patient take the pill and await the desired results.

A brochure on one of the very newest antidepressants states that of a certain number of psychotic patients suffering from in-

volutional melancholia who received this drug, 27% showed marked improvement and 35% moderate improvement. In manic-depressive disease, 34% showed marked improvement and 31% moderate improvement.

But suppose we look at it from the point of view of the patient's need and consider the therapeutic goals required for him. First, we compare the results reported in the brochure with our own intimate knowledge of ECT. In this writer's 15 years of personal experience with ECT, 75% of patients with involutional melancholia were markedly improved with an average of 9 treatments given in a 3 week period. Such results are confirmed by the work of innumerable clinics throughout the world and Arthur P. Noyes² states: "In the depressions of involutional melancholia and of manic-depressive psychosis the improvement following ECT is striking. In 80% or more of these disorders five to ten treatments are followed by full or social recovery." Why then, with almost three times the desired results should we discard this treatment? *Must* we be fashionable?

Moreover, there are other and subtler considerations such as the duration of the patient's illness, the degree of suffering, the economic loss to the patient and, particularly in the depressions, the danger of suicide. A fairly common experience where the patient served as her own control can be cited:

A 48-year-old housewife who suffered from repeated manic-depressive, depressed episodes had her first significant depression in 1944. She was ill for 6 months before being treated but recovered after 12 ECT's with a full remission. The second severe depression in 1957 was treated for 4 months with antidepressant drugs and psychotherapy. The patient showed no improvement, finally requiring 14 ECT's for her recovery from that episode. With the onset of the third significant depression in 1961 the patient's husband brought her for treatment after 2 weeks of illness (anorexia, insomnia,

¹ 45 E. 85th St., New York 28, N. Y.

² Noyes, Arthur P.: *Modern Clinical Psychiatry*. 4th Ed. Philadelphia: W. B. Saunders Co., 1953.

tearfulness, self-depreciation, and suicidal preoccupation). ECT was given immediately. This time the illness required only 8 treatments in an 18 day period for a full remission (although the patient was relieved of "mental pain" and suicidal thoughts after the 4th treatment in an 8 day period).

Early institution of treatment with a proven procedure aborted the illness in less than 3 weeks; the very similar episode 4 years previously, treated first with drugs, required nearly 6 months of therapy (and suffering) and almost twice the amount of ECT because of the delay in administering such therapy.

In dealing with those patients where pharmacological agents have failed to help the condition, this writer has noted that drugs, in too many instances, have deepened the depression, made it refractory to ECT (or at best, created the need for more ECT than previously required), or have helped to convert acute but relatively manageable depressions, into chronic states with poorer prognoses.

Pharmacotherapy is of course proving an enormous benefit to psychiatry and is undoubtedly an addendum to the therapeutic armamentarium. Many patients react to drugs when the illness has not responded to other methods and in numerous cases the drugs are of great value both primarily and adjunctively in the management of a psychiatric patient. Such drugs have also opened many new doors to the mysteries of brain metabolism, neurochemistry and neu-

rophysiology. But why abandon our great store of knowledge which has been so carefully accumulated simply because a new multicolored package wrapped in plastic is handier? It seems as if the clinician who waits for the "follow up reports" and is not content with the large print and graphic displays of the "most recent developments" is in the minority—and old-fashioned.

In clinical practice, the primary goal in therapy is to return the patient to an optimum functioning level in accordance with his potentialities and abilities, and to keep him at this level. Having diagnosed the nature of the disease process, the psychiatrist, rather than reach for the latest sample of a drug in his desk drawer, will structure a comprehensive program, using all forms of treatment available for maximal improvement.

The advent of new treatment measures is always exciting. It creates fresh approaches to research, to studies in etiology and pathology and of course, to diagnosis and treatment. But clinically, the criterion is not newness; it is effectiveness and therapeutic results. Thus, all psychiatrists and other physicians have an obligation to the patient not to discard the useful for the latest, while the younger physicians, particularly those about to go into practice, might do well to familiarize themselves with the "old-fashioned" as well as the new. Fashions do change rapidly in our current age of technology but the responsibility to heal the sick is as old as medicine and this does not change.

CLINICAL NOTES

(The Clinical Notes report the findings of the authors and do not necessarily represent the opinions of the Journal.)

SODIUM AND POTASSIUM CONTENT OF CEREBROSPINAL FLUID COLLECTED FROM PATIENTS WITH CHRONIC SCHIZOPHRENIC REACTIONS¹

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During the course of studies(1, 2) primarily concerned with other biochemical properties of cerebrospinal fluid (CSF) collected from patients with schizophrenic reactions, the opportunity was taken to determine potassium and sodium content as well. Although previous studies by others(3, 4, 5) failed to indicate that sodium or potassium occur in abnormal amounts in CSF collected from such psychotic patients, the paucity of data encouraged the assay of these substances in the relatively large number of specimens available.

CSF was collected by lumbar tap from 92 hospitalized patients with a diagnosis of chronic schizophrenic reaction. None was in a highly excited state at the time of study and none exhibited catatonic stupor. Many of the patients were receiving phenothiazine derivatives at the time of study. Sodium and potassium were determined

by flame photometry(6), using a Baird-Atomic flame photometer, model KY 1.

The results of these determinations (see Table 1) indicated that the content of potassium and sodium in cerebrospinal fluid collected from patients with schizophrenic reactions is not different from the content of these substances in CSF collected from patients without significant disease (see Table 2). Further, among the schizophrenic patients, no significant differences in CSF potassium or sodium content were observed when the patients were separated into the diagnostic subcategories of catatonic, paranoid, hebephrenic, or undifferentiated schizophrenia.

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TABLE 1
Schizophrenic Subjects

| N | | K (milliequivalents/liter) | | | Na (milliequivalents) | | |
|----|----------------------------------|----------------------------|-------------------|---------------------|-----------------------|-------------------|---------------------|
| | | Mean | S.D. ^a | S.E.M. ^b | Mean | S.D. ^a | S.E.M. ^b |
| 41 | Schizophrenia (undifferentiated) | 2.97 | 0.241 | 0.038 | 144.12 | 9.495 | 1.483 |
| 31 | Paranoid schizophrenia | 3.03 | 0.188 | 0.034 | 145.68 | 7.820 | 1.405 |
| 12 | Catatonic schizophrenia | 3.01 | 0.203 | 0.072 | 145.62 | 6.523 | 2.306 |
| 8 | Hebephrenic schizophrenia | 2.96 | 0.173 | 0.050 | 142.58 | 9.424 | 2.720 |
| 92 | TOTAL | 2.99 | 0.212 | 0.022 | 144.58 | 8.656 | 0.902 |

^a Standard deviation.

^b Standard error of the mean.

TABLE 2
Normal Subjects

| N | Source of Data (See Bibliography) | K (milliequivalents/liter) | | Na (milliequivalents/liter) | |
|-----|--------------------------------------|----------------------------|-------------------|-----------------------------|-------------------|
| | | Mean | S.D. ^a | Mean | S.D. ^a |
| 100 | (7) | 2.88 | — | 142.47 | — |
| 20 | (8) | 2.96 | — | 140.60 | — |
| 75 | (9) | 2.97 | 0.399 | 143.40 | 5.74 |

^a Standard deviation.

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PAIRED EPISODES OF MANIC-DEPRESSIVE ILLNESS WITHIN A SINGLE FAMILY

GEORGE E. VAILLANT, M.D.¹

Jacobs and Mesnikoff (1) reported 4 pairs of twins who demonstrated "alternating psychoses." Although 3 of their twin pairs were identical, the authors suggested psychological factors were responsible for the reported paring of illnesses. Since no study of identical twins can ignore hereditary factors, their thesis can be criticized for failing to discuss this aspect. One might expect identical twins to become ill at the same time. A recent paper by Rosenthal (2) demonstrates how misleading disregard for genetic factors can be, and sharply criticizes the concept that predominantly psychological factors lead to the pairing of schizophrenic illnesses in twins.

This report casts no new light upon genetics but does lend support to the idea that simultaneous onset of psychosis in relatives would appear to have variables other than heredity. The report concerns a family that exhibits a high incidence of manic-depressive psychosis, but whose members, although of different ages, appeared to become ill and to be hospitalized in relation to one another (Figure 1).

The A. family had depressive illness in at least half of the members in direct con-

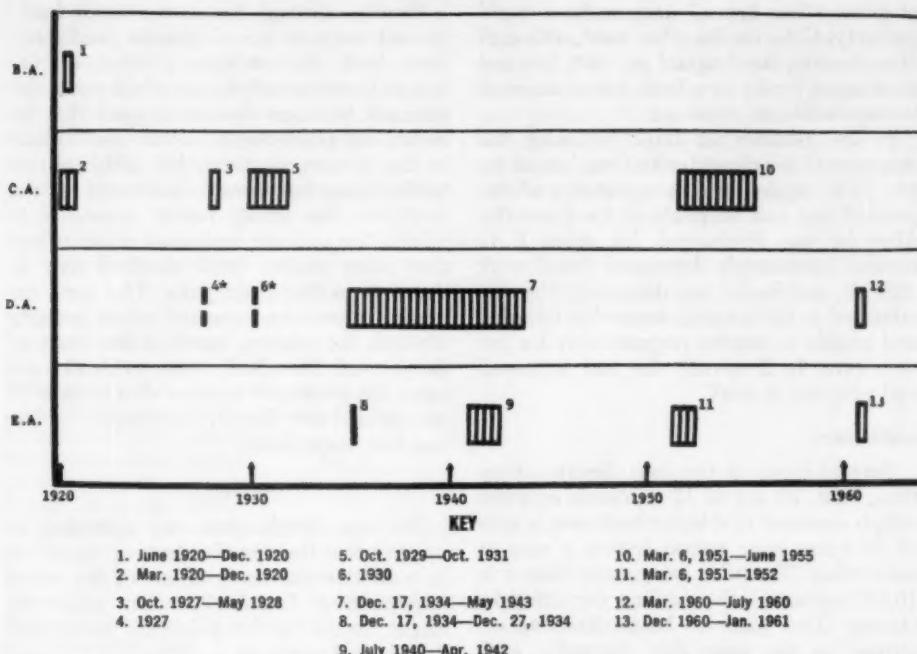
sanguinity to the trio of siblings under study. A grandfather, a maternal aunt, a paternal uncle were all definitely hospitalized; and both parents were alleged to be clinically depressed. Although in the case of 2 of the siblings the diagnosis was initially dementia praecox, retrospective examination of the records reveals that the recorded clinical pictures were equally compatible with manic-depressive illness, and in time the latter diagnosis became clear. The patients recovered from each episode without benefit of somatic treatment or of extensive psychotherapy, and recovered without social deficit, flattened affect, or loosened associations.

The A. family were very close. The 3 children were orphaned in 1910 and lived in a small New England town with their 2 aunts and an uncle. For almost all of their lives they have remained within a few miles of one another, whenever practical have visited each other once a week, and for more than 50 years have been perhaps the most important objects in each others' lives. Only one of the children, D.A., married.

In 1900 at the birth of C.A., the foster mother and aunt of the 3 children had a depression. In 1920 this aunt, B.A., was first hospitalized 3 months after C.A. became ill with an acute psychotic episode. Although

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FIGURE 1



* Indicates manic episode without hospitalization.

B.A. was the dutiful, if cold, foster mother when well, she wished to kill C.A. when sick.

Both women made full recoveries, but C.A. had 2 more hospitalizations in 1927 and 1929. On the second admission she finally received the diagnosis "manic-depressive-depressed": this remained her diagnosis on subsequent admissions. During both her periods of hospitalization, the brother, D.A., experienced bouts of manic behaviour; but although these led to manifestly inappropriate social and business activity, they did not necessitate hospitalization.

On December 17, 1934, the day he was to take his sister, E.A., to the hospital for what was diagnosed as "nervous exhaustion," D.A. became acutely manic and was hospitalized himself for 8 years; except for the manic episodes 5 years earlier, there had been no prodromal symptoms. His mental status varied but was always most consistent with manic-depressive psychosis. His sister was able to return to work after sev-

eral days' hospitalization. Two years later, B.A. died from a cerebrovascular accident; none of the siblings became ill at this time.

In 1940 the youngest sister, E.A., again required hospitalization. She was excited, hallucinating, and her mental content centered around the poor care her brother was receiving in the mental hospital. This was the only illness unlinked by direct temporal association with the onset of illness in another member. The marked affective component of her schizophrenia-like illness led to her diagnosis remaining unclear. After a year she was discharged, "recovered," and held several responsible jobs as did her brother who was discharged a year later.

On March 6, 1951 E.A. took her sister C.A. to the hospital for a severe depression. While the social worker was admitting C.A., E.A. suddenly ceased to be the responsible sibling answering the social worker's questions; she became mute and that afternoon had to be admitted by ambulance to another state hospital. Here, she changed from mute withdrawn behaviour to an acute

manic state, was diagnosed as "manic-depressive—other types," and made a rapid recovery. C.A., on the other hand, although often leaving the hospital on visit, was not discharged for 5 years. Both sisters returned to responsible employment.

In the summer of 1960, following the marriage of his daughter and the loss of his job, D.A. again became agitated and depressed and was hospitalized for 4 months. After he was discharged, his sister, E.A., became increasingly depressed, found work difficult, and finally was dismissed. She was admitted to the hospital somewhat retarded and unable to assume responsibility for her own care. In 2 months she had improved and returned to work.

DISCUSSION

Several facets of this case deserve attention. First, 12 out of 13 psychotic episodes which occurred in 4 individuals over a span of 40 years were paired within a year of each other. The odds are greater than 1 in 10,000 against such coupling occurring by chance. Two pairs of hospitalizations occurred on the same day. Secondly, each member initiated at least one of the paired illnesses; each one except the aunt remained ill for at least a year; and in no case were there shared delusions. This evidence militates against the phenomena of *folie à deux* or psychotic symptomatology

secondary to a conversion reaction.

Finally, although the strong family background suggests a real genetic predisposition, both the striking pairing of the hospitalizations and the excellent social adjustment between illnesses suggest that intrafamilial psychologic factors were crucial in the decompensations. For although extensive psychodynamic evidence is not available, the whole family appeared to exhibit the delicate reciprocal relationships that other studies have ascribed only to twins or mother-child pairs. The same excessive interdependence and covert hostility towards the relative, noted in the study of Jacobs and Mesnikoff, were evident. In 3 cases the particular relative who became ill second had felt directly responsible for the one first hospitalized.

SUMMARY

For one family data are presented to suggest that the specific stress of psychosis in a relative can serve as one of the major precipitating factors in what otherwise might appear to be a largely genetically determined psychosis.

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A CLINICAL EVALUATION OF MELLARIL

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There is little doubt that the phenothiazines have been a boon to the treatment of mental disorders, especially schizophrenic reactions. Following the introduction of the phenothiazine group, there have been attempts to alter the nucleus in an effort to prepare tranquilizers of greater potency, but this has wrought little other than a "battle of the milligrams" comparable to that evidenced earlier with a progression of "new" steroids for the treatment of collagen diseases. While it is true that "more potent"

tranquilizers have been developed, the consequences have not been all salutary, for there has been a noticeable increase in incidence and severity of side effects, especially those related to extrapyramidal stimulation(1).

The value of any therapeutic agent is a composite of clinical efficacy and toleration, and this report is concerned with a phenothiazine that appears to exhibit a high index of usefulness. The chemical configuration of Mellaryl² (thioridazine hydrochloride)

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² Sandoz Pharmaceuticals.

ide) is somewhat unique in having a thiomethyl radical in position 2 and a piperidine ring in position 10. A number of clinical studies have shown it to be an effective tranquilizer with little tendency to produce Parkinsonism and devoid of the dystonic reactions encountered with other agents of this class(2, 3, 4).

Mellaril was evaluated over a period of

optimum effect was obtained. A maximum dose of 1600 mg. daily was employed in a few cases, but in general, dosage ranged from 75-600 mg. daily. Special care was taken to titrate dosage to suit the needs of each patient. Each patient was his own control; his response to Mellaril compared with previous medication serving as the yardstick of improvement or lack of it.

TABLE 1

| | Diagnoses |
|---|-----------|
| Personality Disorders | |
| a. Inadequate personality | 1 |
| b. Schizoid personality | 1 |
| Schizophrenic reaction, acute undifferentiated type | 1 |
| Schizophrenic reaction, chronic undifferentiated type | 12 |
| Schizophrenic reaction, hebephrenic | 3 |
| Schizophrenic reaction, catatonic | 21 |
| Schizophrenic reaction, paranoid | 14 |
| Schizophrenic reaction, simple | 1 |
| Chronic brain syndrome with convulsive disorder (deterioration) | 2 |
| Chronic brain syndrome with convulsive disorder (epilepsy) | 1 |
| Chronic brain syndrome with cerebral arteriosclerosis | 1 |
| Chronic brain syndrome associated with alcoholic intoxication (Korsakoff) | 1 |
| Psychoneurotic reaction, obsessive compulsive | 2 |
| Psychotic disorder, manic | 4 |
| Psychotic disorder, depressed | 2 |
| Schizophrenic reaction, schizo-affective type | 1 |
| Unclassified | 2 |
| Psychosis with mental deficiency, imbecile | 3 |
| Chronic brain syndrome with senile disease | 1 |
| 74 Patients | |

20 months in 74 male patients, aged 14-78 (average 42 years) who had been confined to hospital³ for periods ranging from 1 to 31 years (average 8 years). Diagnoses are shown in Table 1 and a breakdown of psychiatric symptomatology in Table 2. In essence, these patients were disorganized and restless, exhibited disturbed thinking and action and were noisy and untidy in their general habits.

This series of patients had previously received various forms of treatment, including most of the presently available tranquilizers, alone or in combination with "energizers," MAO inhibitors and EST and had not responded adequately. The starting dose of Mellaril was 25 mg. t.i.d., maintained for 5-6 days and then gradually increased until

TABLE 2

| | Psychic Symptoms |
|----------------------|------------------|
| Anxiety | 7 |
| Nervous tension | 14 |
| Apprehension | 8 |
| Insomnia | 5 |
| Restlessness | 21 |
| Headaches | 5 |
| Crying spells | 11 |
| Dizziness | 2 |
| Tremors | 1 |
| Sighing respiration | 3 |
| Heart consciousness | 1 |
| Violent outbursts | 16 |
| Confused states | 16 |
| Destructive behavior | 12 |
| Poor impulse control | 14 |
| Delirium | 2 |
| Hallucinations | 25 |

³ Metropolitan State Hospital.

RESULTS

Of the 74 cases, 19 were rated excellent, having improved sufficiently to permit discharge or parole; 16 were considered markedly improved, as measured by significant quietening and tidiness—these were permitted ground privileges and visits to their homes; 15 were rated fair, demonstrating fewer outbursts and moderate improvement. The remaining 24 patients showed no improvement, some through refusal to take medication or discontinuation thereof.

It was interesting to note a change in the ward atmosphere coincident with quietening of the more agitated cases, reduction in disturbances and altercations, better rapport among patients and with nursing personnel. An improved sense of well-being amongst most of the patients was an observation reported by several of the attendants.

The only side effects of any consequence were seen in 2 patients who exhibited pseudoparkinsonism, which occurred near the conclusion of the study and which dissipated following reduction in dosage. Special attention was paid to blood checks(5), with tests being performed before the institution of therapy and once a month thereafter. However, no sign of blood dyscrasia was evidenced throughout this study.

Comparing Mellaryl with other therapies that had been employed, it was noted that

the patients receiving it seemed to be alert, in contrast to the "knocked-out" state that had been seen with some phenothiazines. Previous trial with other phenothiazines had been disappointing because of the extrapyramidal symptoms, which appeared with doses too low to afford adequate clinical improvement. It would seem that increased toleration was the major factor in permitting Mellaryl to demonstrate its therapeutic potential to a greater extent than that obtained with the other compounds.

SUMMARY

A clinical evaluation of Mellaryl in 74 chronic psychotics has shown it to be an effective and well tolerated tranquilizer. Its ability to control or modify major emotional disorders with little or no clouding of consciousness or extrapyramidal stimulation is its greatest *forte* in comparing it with other phenothiazines.

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THE USE OF PARNATE IN THE TREATMENT OF DEPRESSION

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Management of the depressed patient remains a complex problem for the clinician. Many of these illnesses prove to be very refractory when the criterion of full remission is utilized and a good deal of flexibility and persistence is required on the part of the physician and his patient. The full armamentarium of the clinician, including psychotherapeutic interview, convulsive therapy, outpatient convulsive therapy, the

use of monoamine oxidase inhibitors and other antidepressant medications, particularly Tofranil, may be utilized.

This clinical note will describe work with a promising new antidepressant medication, Parnate.² All patients in this study were treated by this physician in private practice, both in and out of the hospital. Thirty-three patients received Parnate with Stelazine, 1 or 2 mg. in a tablet, Parstelin. The patients

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² Medication for this study was furnished by Smith Kline & French Laboratories.

were all depressed and most suffered from involutional depressive states. A number of patients had been previously treated with several series of convulsive therapy and a variety of medications, including Stelazine, over the years. Several patients suffered from illnesses which were of schizophrenic nature but with substantial depressive elements. The patients ranged in age from 20 to 70 years.

Results with this medication, administered in dosages averaging 30 mg. of Parnate daily and 3 to 6 mg. of Stelazine daily were generally impressive. Even more impressive was the specific response of several patients who had been in the care of this physician for 5 or 6 years and who had previously failed to obtain substantial or sustaining remission. During one 2-month period, a group of 4 patients were switched from Parnate and Stelazine and were placed on Stelazine and another antidepressant medication. Three of these patients sustained relapses during a 2-month period and thence improved again when placed back on Parnate. Although there were some patients who were totally non-responsive, approximately two-thirds improved moderately to substantially. There were no serious toxic side effects although some patients complained of dryness of the mouth, sweating and some dizziness. The dizziness appeared to be associated with sudden change of bodily position. Another occasionally disturbing side effect was a rather sudden sharp headache which 4 patients reported.

These headaches which were apparently related to the medication and occurred once or twice during the treatment were of brief duration, and not accompanied by any neurologic signs. The headaches were controlled by aspirin.

Routine blood and urine tests and liver function tests were done. No alterations were noted.

The clinical course of these patients was somewhat variable but those who responded well tended to improve during the first 2 weeks and only 2 patients in the group responded well after a period longer than 2 weeks. Following an initial favorable response, the medication was continued, though in smaller doses for periods beyond several months. Some patients have discontinued the medication and have sustained their improvement.

SUMMARY

Six months of clinical experience with a new antidepressant medication, Parnate (tranylcypromine), indicates that this compound is a very effective monoamine oxidase inhibitor. It appears to act fairly rapidly in a wide variety of depressive states and in this examiner's hands seemed to effect remission in several very refractory depressive illnesses. It would appear to be indicated in the treatment of any form of depression and warrants trial in some long depressive illnesses which had been non-responsive to other therapies.

A NON-REPORTED SIDE EFFECT OF IMIPRAMINE

CARLOS A. LEON, M.D.¹

In a group of 50 patients receiving imipramine,² 30 of whom were followed-up for more than 6 months, we found that 5 of the latter presented the following hitherto undescribed reaction:

Around the first or second week of treat-

ment under a daily oral dose of 100-150 mg. of imipramine, an unexpected phenomenon occurred described by the patients as "electric shock," "jerk," "sudden thrill." This happened in all cases when the patients were resting in bed and most often when they were about to fall asleep.

Detailed inquiries about the peculiarities of the above mentioned phenomenon, and the fact that one of the patients who experienced it is a physician, allowed us to

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² Supplied as Tofranil through the courtesy of Geigy Laboratories, Basilea.

characterize it as a single generalized tonic muscular contraction producing hyperextension and lasting for only about a second or less. No other symptoms were described as preceding, accompanying or following this reaction. Alarm and preoccupation about the symptom were experienced by all patients in moderate-to-intense degrees leading in one case to discontinuance of the medication.

Only one of the patients was receiving additional medication at the time the reaction occurred. None of the patients had ever complained of convulsive disorders in the past. The therapeutic effect in all cases was satisfactory.

Although the symptom occurred usually for several times during the same day, the interval between episodes was never shorter than 2 hours.

We will summarize briefly the case histories :

Case 1. A 38-year-old married male with a diagnosis of manic-depressive reaction, depressive type. Started on 75 mg. a day of imipramine, increased gradually to 150 mg. a day within a week, kept at this dose for 4 weeks, to be gradually reduced to a maintenance dose of 50 mg. a day. On the third week he complained anxiously of having experienced a sensation of "electric shock on the whole body" while falling asleep. This was repeated frequently in the course of the following 3 weeks, appearing at least once a day always when the patient was at rest. Disappeared spontaneously at the end of the sixth week.

Case 2. A 50-year-old widowed female diagnosed as chronic depressive reaction. Imipramine was started at a daily dose of 75 mg. which was increased within 3 days to 125 mg., sustained for a month and then gradually reduced to 50 mg. a day for 2 months. During the first week she experienced "jerks" as if produced by "an electric discharge." The "jerks" continued throughout the fourth week especially when patient was at rest and then disappeared spontaneously.

Case 3. A 60-year-old married male with a diagnosis of involutional reaction. Imipramine was started at a daily dose of 100 mg., increased to 150 at the beginning of the second week, sustained for 2 weeks and then gradually reduced to 50 mg. a day within the following month. During the second week, patient complained of "sudden jerks" or "thrills" generalized to the whole body, which occurred when

he was at rest. These episodes repeated frequently along the second and third week; patient became quite alarmed about the symptom and discontinued the medication on his own, but was persuaded to restart it the following day at a reduced dose of 100 mg. a day. No symptoms appeared hereafter.

Case 4. A 27-year-old single female diagnosed as schizophrenic reaction, chronic undifferentiated type with superimposed depression. Imipramine was started at a daily dose of 100 mg., increased to 150 mg. on the second week, sustained for 1 month and gradually reduced to 5 mg. within the following month. Eight days after the medication was started, patient experienced a "reaction like an electric discharge" while she was about to fall asleep; this was repeated several times for 3-4 days while at rest and caused her a great deal of concern but disappeared spontaneously after this short period.

Case 5. A 35-year-old married male with a diagnosis of depressive reaction in an emotionally unstable personality. Imipramine was started at a daily dose of 100 mg., increased to 150 mg. within the first week; this was sustained for 1 month and then gradually reduced to a daily maintenance dose of 50 mg., within the following month. During all this period, patient kept taking a daily dose of 400 to 1200 mg. of meprobamate, which he started to take 3 months prior to the depressive crisis without ever experiencing undesirable reactions. During the second week, he complained one night of "an instantaneous convulsion" which was repeated on several occasions throughout the fourth week; he was quite anxious about the symptom and feared that he may develop epilepsy, but it disappeared spontaneously.

DISCUSSION

We have described an undesirable side effect of imipramine which does not seem to be related to individual intolerance, amount of drug or time of administration.

Speculations as to the nature of the phenomenon point to the possibility of a convulsive-like disorder related to cortical or subcortical excitation or to a lowering of the convulsive threshold. The effect seems to wear off spontaneously within a variable period of time.

Epileptic G. M. seizures have been reported in patients treated with M. A. O. inhibitors³ including one case who received imipramine.

³ Sharp, W. L.: Am. J. Psychiat., 117: 458, Nov. 1960.

The interesting characteristics of the side effect and its apparently high incidence (10% of our cases) make further investigations most desirable.

INDUCED 5-HYDROXY-INDOLE-ACETIC ACIDURIA IN THE SCHIZOPHRENIC AND THE NON-SCHIZOPHRENIC PSYCHIATRIC PATIENT¹

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5-hydroxy-indole-acetic acid (5-HIIA) is the urinary endmetabolite of serotonin. Since it has been shown that increasing the brain serotonin will result in hallucinoses (1, 2), an aberration of the serotonin metabolism was hypothesized to be contributory to schizophrenia.

Variations of 5-HIIA are easy to measure. Thus they were a convenient way to demonstrate variations of serotonin metabolism. Several papers deal with differences between schizophrenics and non-schizophrenics in respect to 5-HIIAuria. Feldstein, *et al.*(3) and Buscaino, *et al.*(4) did not find any differences between 5-HIIAuria in normals and schizophrenics. Attempts to induce 5-HIIAuria brought conflicting results. Buscaino, *et al.*(4) find that injected serotonin-creatinine-sulfate shows up as 5-HIIA in schizophrenics at a much higher rate than in normals. Zeller, *et al.*(5) and Lauer, *et al.*(6) report that oral tryptophane will increase 5-HIIA in the normal but not in the schizophrenic. Sachidananda, *et al.*(7), however, affirm the exact opposite, while Kopin(8) finds increased 5-HIIA in both groups.

No attempt has come to our knowledge to use reserpine as a means to induce 5-HIIA in order to differentiate between the schizophrenic and the non-schizophrenic. Reserpine liberates not only the brain serotonin but the entire body serotonin as well (9, 10).

This paper deals with some experiments to use reserpine induced 5-HIIAuria as well as oral tryptophane as a screening test for schizophrenia.

¹ This study is supported by the Canadian Ministry of Health and Welfare.

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MATERIALS AND METHODS

Ten male schizophrenics, aged 20-40, suffering from various forms of the disease were compared with a similar group of 12 non-schizophrenic patients. A third group of schizophrenics of various ages, males and females, received only placebos.

On the first day all medication was suspended at noon and was not resumed until after the end of the experiment. The subjects received, however, each evening 200 mg. chloral hydrate to ensure sleep. Fasting was enforced from after supper until noon of the following day. On the second day, the patient was instructed to urinate at 9:00 a.m. and was given a placebo (injection or capsule). All urine was collected for 150 minutes, acidified and put into the frigidaire. On the third day the same routine was followed again. The placebo was replaced by the treatment (an intramuscular injection of 2.5 mg. Serpasil³ or a capsule, containing 100 mg. 1-tryptophane). The nature of the treatment was not known to anyone having any direct contact with the subject.

Because of the profound and lasting effect of reserpine, no inversion of the order of the treatment was attempted. For this reason, the third group of schizophrenics was added. They received placebos on both days. This was done to find out whether variations of 5-HIIA could be due to the withdrawal of the medication.

The urine samples of the second and of the third days were analyzed together for 5-HIIA content according to the method of Udenfried(12, 13) as modified by Garner

³ We wish to thank the Ciba Company Limited of Montreal for their gift of Serpasil and the corresponding placebos, as well as Miss Fernande Bastien for her excellent technical assistance.

(14). Creatinine was determined according to standard methods (15).

RESULTS

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TABLE 1

| | Placebo | Reserpine | Probab. ⁵ | Placebo | 1-Tryptophane | Probab. |
|--|------------|------------|----------------------|------------|---------------|---------|
| Non-schizophrenic mg. 5-HIAA/ gm. creat. | 12.2 ± 2 * | 20 ± 2.9 | >0.05 | 11.6 ± 1.6 | 10.4 ± 1.4 | <0.6 |
| Schizophrenic mg. 5-HIAA/ gm. creat. | 10.6 ± 1.5 | 16.2 ± 1.7 | >0.05 | 12.3 ± 2 | 12.6 ± 2.2 | <0.9 |
| | Placebos | 1st Day | 2nd Day | | Probab. | |
| Schizophrenic controls | | | | | | |
| mg. 5-HIAA/ gm. creat. | | | | 10.6 ± 1.2 | 9.8 ± 1.1 | <0.9 |

* Standard error of the means.

⁵ The probabilities were calculated by means of Student's "t".

DISCUSSION AND CONCLUSIONS

Reserpine will increase the urinary 5-HIAA excretion of the schizophrenic as well as of the non-schizophrenic control. It was not deemed prudent to repeat the experiments using a higher dosage level of reserpine, as toxic side effects were observed in many of the subjects. A single dose of 100 mg. 1-tryptophane did not vary in any way the 5-HIAA uria of any of the patients nor did the withdrawal of medication.

SUMMARY

Inducing 5-hydroxy-indole-acetic aciduria by injecting reserpine and by oral tryptophane did not differentiate between schizophrenic and non-schizophrenic psychiatric patients within our experimental conditions.

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A PILOT STUDY OF L-GLUTAVITE IN HOSPITALIZED "AUTISTIC" AND "HYPERACTIVE" CHILDREN

SEYMOUR LEVEN, M.D., AND ARTHUR S. IMPASTATO, M.D.¹

Recent studies in the use of L-Glutavite on hospitalized elderly schizophrenic patients have indicated that significant improvement may be expected in their mental status and social behavior. With these patients becoming more active and interested in their environment(1, 2, 3, 4), it was felt that a pilot study was indicated to see whether L-Glutavite was of any therapeutic value in "autistic" and/or "hyperactive" children hospitalized at Kings Park State Hospital.

L-Glutavite is a mixture of mono-sodium L-Glutavite plus vitamins and minerals. Upon absorption the L-Glutavite is presumed to appear in the blood as glutamic acid, the main ingredient affecting cerebral metabolism, while the vitamins function in the process as coenzymes.

Thirty-five male children whose ages ranged from 5 to 14 years were selected for the study. Sixteen were "autistic" and 19 were "hyperactive." All were in good physical condition and none was suffering from congenital or organic disease. Complete psychiatric and psychological as well as EEG examinations were performed on each child prior to the study and all forms of therapy and other medication were discontinued.

A simplified behavioristic rating scale was used and each of the children selected was evaluated by 4 different trained observers prior to treatment and bi-weekly thereafter for 6 weeks. Unknown to these observers (ward nurse, school teacher, occupational and recreational therapists) was the fact that only 10 of the "hyperactive" and 8 of the "autistic" children received the L-

Glutavite while the others received the placebo, tomato juice. A standardized dose of one teaspoon of L-Glutavite per 4 ounces of tomato juice was given.

RESULTS

In the group of 10 "hyperactive" children receiving L-Glutavite 2 showed appreciable overall improvement while another 2 only minimal improvement. In the group of 9 "hyperactive" children receiving the placebo 2 showed the same degree of overall improvement and only 1 showed minimal results.

In the group of 8 "autistic" children receiving L-Glutavite none showed any appreciable degree of improvement and only 2 achieved minimal results. Of the 8 "autistic" children receiving the placebo one did improve considerably.

SUMMARY

Of 18 children receiving L-Glutavite in the blind study only 2 showed appreciable improvement in their behavior. Of the 17 children receiving the placebo 3 displayed the same degree of improvement. L-Glutavite in the dose administered during this 6-week study did not cause any marked improvement in "hyperactive" or "autistic" children.

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A CLINICAL TRIAL OF CHLORPROTHIXINE

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AND L. GOLDSCHMIDT, PH.D.¹

Chlorprothixine (Taractan)³ is a drug recommended for treatment of a variety of mental disorders. A clinical and toxicological study was undertaken prior to marketing of the drug.

It was planned to give chlorprothixine in dosage up to 100 mg. daily to acutely ill newly admitted patients and in dosage of 200 mg. and over a day to chronically ill patients with symptoms of depression or withdrawal. Experience soon showed that low dosage was not effective, and the drug was then given to acutely ill patients in dosage of 50 mg. t.i.d. for 1 week, 100 mg. t.i.d. for 2 weeks, followed by 150 mg. t.i.d. for 3 weeks. At the end of this period if the patient was unimproved 200 mg. was given t.i.d., and reduced to 100 mg. t.i.d. in event of improvement. Determinations on blood were performed weekly for 3 weeks and then bi-weekly, as follows: total white blood count, differential white blood count, hematocrit, alkaline phosphatase, and non-protein nitrogen. Determinations on urine were made at the same frequency, as follows: specific gravity, albumin, glucose, microscopic studies.

Clinical evaluation was done by super-

vising psychiatrists, according to symptom complexes. Excitement was the most frequently occurring symptom complex including aggression and combativeness. Delusions and hallucinations were next most frequent, then withdrawal and autism, dissociation and motivational confusion, and depression. Table 1 shows the study population by sex, by age decades and by diagnostic designation.

RESULTS

Forty-seven patients (33%) improved, 60 (42%) did not change and 37 (25%) showed worsening of the major symptom complex. The only symptom complex which showed no change was hallucination and delusion. There were only two instances of leukopenia and one instance of increase in alkaline phosphatase. Upon withdrawal of the drug these disappeared after 2 weeks, and their relation to the drug therapy is uncertain. The drug was well tolerated by patients. The most frequent side effects were somnolence and tachycardia. There were no extrapyramidal symptoms, even at high dosage.

Our clinical observations indicate that chlorprothixine is an effective sedative. Its tranquilizing effect is considerably less than that of chlorpromazine, and it did not alter delusions or hallucinations. An antidepressant effect of the drug was not apparent, even at high dosage.

TABLE 1
Characteristics of 144 Psychiatric Patients Treated with Chlorprothixine

| SEX M F | NUMBER OF PATIENTS BY DECADE OF AGE | | | | | | DIAGNOSTIC CATEGORIES | | | | | | |
|---------------|--|-------|-------|-------|-------|-------|------------------------------------|-------------------------|-------------------------------------|---|--------------------------|-----------------------------------|-------|
| | 15-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | Manic- depressive, depressed | Acute and Chronic | Involu- tional Psy- chosis | Psy- chosis with Alco- holism | Senile Psy- chosis | Cerebral Arterio- sclerosis | Other |
| 68 76 | 23 | 30 | 27 | 23 | 23 | 18 | 10 | 91 | 10 | 4 | 8 | 8 | 13 |

CASE REPORTS

TOLUENE SNIFFING PRODUCING CEREBELLAR DEGENERATION

DANIEL A. GRABSKI, M.D.¹

Despite the wide-spread use of tobacco, the intake of intoxicants via the respiratory tract through inhalation, or sniffing, is infrequently reported. Modern industrial technology has produced a wide variety of solvents, the volatility of which makes them readily available to inhalation. The following case will demonstrate the consequences in one case.

H.J.B. was hospitalized for the first time in January 1954, at the age of 21. He stated that approximately 2 years earlier, while working in an aircraft factory he was assigned a job cleaning items in a solvent he identified as Toluene. While working over a large container of the substance he had inhaled its vapors, liked their smell, and the "dizzy effect" or euphoria he experienced. This led to experimentation and he inhaled the vapors of various other solvents. He claimed gasoline had a very euphoric effect and would use this when Toluene was unavailable. Isopropyl alcohol was without effect. Trichlorethylene and methylethylketone smelled bad and were rejected. He solved his Toluene supply problems by purchasing the chemically pure (CP) substance in gallon lots from a paint store when he could no longer filch Toluene of analytic reagent purity from the aircraft company's laboratory (he was quite concerned about using only a pure substance). He continued to use this drug by inhalation until he was hospitalized. At this time his mother stated the patient would frequently spend time at home clutching a rag he had soaked in Toluene to his face inhaling its vapors. This bizarre behavior did not cause family concern until mental confusion, dizziness, inappropriate laughter, staring into space and threatening suicide made hospitalization necessary. Physical examination on first admission revealed evidence of cerebellar disease, as well as hepatomegaly and impaired liver function. Psychological testing was more compatible with a schizophrenic disorder than of

organic brain disease, although the overall clinical impression was that of a primary personality disorder with secondary toxic symptoms produced by Toluene inhalation.

The patient has been hospitalized 3 times since under essentially similar circumstances. On his most recent admission, in 1958, neurological examination revealed the following:

Orientation, memory and intellectual functioning were within normal range.

Olfactory sense intact.

Eyes showed only slight nonpersistant nystagmoid movement on lateral gaze. Fundi : normal.

Cranial nerves, 5,7,9,11,12, no evidence of abnormality.

Deep tendon reflexes, of moderate intensity, equal bilaterally.

Posterior column signs, toe position and vibratory sense intact. Bilateral equivocal Babinski sign with negative Gordon, Oppenheim, and Chaddock.

Muscle tone and muscle bulk within normal limits.

Gait : classical titubating gait with redundant movements characteristic of cerebellar disease involving the lateral lobes.

Cerebellar signs : intention tremor of both hands and feet, more pronounced in the hands. Mild adiadochokinesis in the upper extremity ; rebound phenomena in both arms and legs. A drift phenomenon was not demonstrated.

Superficial reflexes : abdominals equal bilaterally, cremasterics absent.

Sensory examination : two point discrimination, pain discrimination within normal limits.

The possibility of multiple sclerosis or a familial cerebellar disease was considered and excluded following evaluation of the family members, and the absence of any eye difficulties at any time in this patient. The final impression was of a degenerative lesion of the lateral cerebellar lobes due to prolonged inhalation of Toluene vapors.

Toluene is a highly toxic, aromatic solvent used extensively in industry and readily available, although fortunately rarely used, for inhalation purposes. The chemical

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formula is $C_6H_4CH_3$, a methylated benzene ring. The substance is available under the commercial name of Toluene, Toluol, or Methylbenzene. Its toxicity rating is 4, which is considered very toxic; 50 to 500 mg. per kg., or 4 to 30 ozs., for a 70 kg. man are considered a fatal dose(1). The toxicity is similar to a related group of aromatic hydrocarbon solvents such as benzine, cumine, and mesitylene. These substances are commercially found as contaminants of one another and are widely used in industry. They may be found around the home in paint removers, degreasing cleaners, lacquers, insecticides, pesticides, and plastic cements. All of these aromatic hydrocarbons produce basically similar types of reactions, namely, local irritation, central nervous excitation and depression, and bone marrow inhibition.

Psychiatrists will undoubtedly see more

and more patients who have sought refuge from their personality disturbances through the inhalation of aromatic or aliphatic solvents(2, 3) and may overlook the serious toxic effect of these drugs. Cerebellar signs, in particular, are easily overlooked. Tremors may be passed off by patient, family, and even examining physician, as "nervousness." Toluene can produce irreversible cerebellar degeneration among its other toxic effects and the cessation of its inhalation must be considered emergent in the psychiatric treatment of this type of addiction.

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THE PRESIDENT'S PAGE

DO WE HAVE A POSITION?

The aphorism that nothing that is human is foreign to psychiatry is a commonplace. Occasionally one encounters a more caustic corollary to the effect that it is no great challenge to a gentleman of the press to elicit a psychiatric opinion on virtually anything from the foibles of the Roman emperors to the frustrations of the suburban housewife.

Be that as it may, however prone to public pronouncement the individual psychiatrist may be, one detects no such alacrity among psychiatrists to express themselves collectively through their Association.

A major responsibility of our Association (and of other professional associations in their fields) is to counsel the community on matters that fall within our professional competence. That is one good reason why the community confers a special status on us as a non-profit, tax-exempt, educational organization.

We accept and discharge that responsibility in several positive ways. We publish standards for psychiatric facilities. We alert the public to dangers in the irresponsible use of hypnosis and tranquilizers. We take official positions on the confidentiality of the doctor-patient relationship and on psychotherapy in medical practice. Less officially, but probably even more influential, we perform our counseling function by setting up boards and committees to screen what shall appear in our reports and journals. Beyond that we have a staff facility which responds to thousands of requests for information and opinion on our stationery.

We also render counsel by refusal to take a position, by failure to respond, since negation is quite as subject to interpretation as affirmation. It is possible that we rely too heavily on this device. To the extent that failure to respond is the product of necessity or thoughtful intent, it may indeed be the only or the wisest course of action. The bothersome question is whether our use of the device is the product of necessity or thoughtful intent or oftentimes the product of

something less salutary.

This is not to suggest that collective psychiatry should burst into print with official opinion on the deleterious effects of television on children, or the Berlin crisis. Still, a debater's brief is easily mustered to the effect that we, the Association, have been excessively timid in delineating the area of competence in which we owe a rendering of counsel to the community.

Every psychiatrist to his own illustrations.

It seems a little strange to this writer, for example, that our Association has no opinion on the Kefauver-Celler Bill. How many members know what it is? In a sentence it would restrict the production, marketing and patenting of drugs until their safety and effectiveness is fully validated. The American Medical Association and pharmaceutical manufacturers oppose the bill in the general conviction that it would lead to undesirable Federal controls.

Surely here is an issue of deep and special concern to us. We use a lot of drugs. Who among us had not expressed indignation and shock at the excessive and unproven claims attendant on advertising the birth of a new tranquilizer? Shall we let it be assumed that as physicians we "go along" with the position of organized medicine? Perhaps we do. But it is possible that collective psychiatry harbors a conviction that present agencies and techniques for drug evaluation, marketing, and promotion are inadequate and that more rigorous measures are indicated. If so, should we not offer our counsel to the community on the Kefauver-Celler issue?

Take the Kerr-Mills bill which proposes a Federal matching grant program to encourage state expenditures on medical care for needy aged people. The Kennedy administration has a counter proposal that would eliminate any means test and make medical care for the aged available to everyone eligible under the Social Security system. How do we, the psychiatrists, feel about it? And especially, what would we say if neither proposal provided any bene-

fits for otherwise eligible aged but mentally ill persons? Shall we allow others to speak for us on this issue, too?

So much for just two examples. It almost seems that an issue must actually invade the area of psychiatric clinical practice if it is to stimulate a reaction from psychiatrists collectively. Such issues as the drug problem and medical care to the aged are apparently considered a little too peripheral to capture our collective concern. So we fail to respond with counsel, even though it is manifest that any resolution of these issues will drastically affect our clinical practices.

Our Association, through its Council, Committees, and Staff, has ample facilities that could be used more intensively for the transmission of counsel to the community. Should we not proceed to use them to this end?

Many World War II veterans among us will recall the old military quip, "Well, let's raise the flag, boys, and see who salutes." These comments are in the nature of such a flag raising. Will anybody salute?

WALTER E. BARTON, M.D.,
President.

COMMENTS

PARITY IN NURSING EDUCATION

The theme that emerged from an early Mental Hospital Institute was the "Therapeutic Community". In a discussion on Nursing at a subsequent Institute it was noted that the number of professional nurses employed in mental hospitals had decreased almost to the vanishing point and that the only state systems which could obtain any significant number of professional nurses were those which provided undergraduate training programs. The available statistics indicate that the situation has not improved and one wonders whether there has been much effort to improve it. Albee states in passing "... no nursing leader has suggested a return to the practice of training nurses in schools located in mental hospitals . . ." However nursing leaders generally are very enthusiastic about providing a period of experience and formal instruction in psychiatric nursing for undergraduates in the general nursing course.¹ When the question of providing schools of nursing in mental hospitals is raised the answer is that they would be acceptable if they could meet the standards. This seems fair enough if it did not always seem to carry with it the implication that, of course, they could not really be expected to meet the standards.

The attitude of mental hospital administrators is a little difficult to determine. Some maintain that they can prepare other categories of personnel who will be better qualified to function as key personnel in the "therapeutic community" than is the professional nurse. Can we accept this opinion at its face value or is it a tacit acceptance of the impossibility of providing in mental hospitals a high standard of basic training for professional nurses or of obtaining professional nurses trained elsewhere?

The question may well be raised "why make so much of the professional nurse, or why confine the term to the general-trained

registered nurse?" Some jurisdictions have raised mental hospital nurses without general training to the professional level but the sponsors are quick to assert that these nurses get as satisfactory training in the physical care of the patient as the general nurse. Nevertheless they cannot get recognition as having equal competence to provide physical nursing care.

Theoretically nursing educators agree that the nurse should be able to apply her skills to the care of the "whole person". Theoretically the basic training of the psychiatric nurse and of the general nurse should be very similar. This cannot possibly be provided in social structures as different as the general hospital and the mental hospital. However there seems to be a good possibility that in the future general hospitals and mental hospitals will resemble each other more closely. In such an event it would be expected that the general nurse and the psychiatric nurse would develop similar competence to meet the needs of the patient.

In Ontario we have had the collaboration of the Nursing Branch of the Department of Health in redesigning the course for undergraduate nurses in 3 mental hospitals. (Essentially the function of the Nursing Branch is to set standards for and to inspect schools of nursing throughout the province.)

In this collaborative effort particular attention has been devoted to evolving more effective methods of studying the "whole person" and his interaction with his environment. The basic course which has been designed for the purpose embodies the elements of the physical and social sciences essential to the development of skills in nursing and should be applicable equally to training for general and mental hospital nursing.

The basic course of 9 months is taken in the "home" school and is followed by 15 months affiliation in a general and a children's hospital. Although, since 1937, at least one year's affiliation in grade A gen-

¹ In Ontario the mental hospitals provide 3 month affiliation courses for about 1,800 students from general hospital schools of nursing each year.

eral hospitals has been provided for undergraduates training in mental hospitals, the new relationships that have been developed are providing for better integration of the students in the affiliate hospitals.

The first 2 years, including affiliation, are essentially academic. The third year, taken in the "home" school, is devoted to psychiatric nursing in the mental hospital and its community services.

The student who successfully completes the 3 years is eligible to sit the examination for the R.N. As an R.N. she is able to qualify for employment as a general nurse in any type of hospital or in private practice. At the same time she has the advantage of much more extensive training in psychiatric nursing than is provided by the usual psychiatric affiliation.

With the beginning of the new course stipends were increased, bursaries made available and recruiting drives were carried out by each school of nursing in its own hospital area. These efforts have been rewarded by a great increase in the number and quality of applicants, and the enrolment, after more careful selection, has more than doubled.

The fear is sometimes expressed that training that will fit nurses to obtain employment in general nursing will only encourage the nurse to leave the mental hospital. This is an expression of distrust of our ability to make employment in the mental hospital interesting and congenial. This is a risk that we are prepared to take because previous experience with general nurse training has been reassuring.

The efforts outlined above can only be justified on the assumptions that the nurse's role is still relevant to the care of sick people, that the nurse is the doctor's most appropriate assistant and that the nurse with combined training is likely to be more competent in the care of patients and particularly in a responsible supervisory role. These assumptions are made on the condition that programs of nurse training will ensure that the nurse is prepared to use the interpersonal skills which are relevant to her function in the therapeutic process.

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PROPHETIC

The world is getting democratic and socialistic faster and faster and out of it all a new civilization will emerge. Will it ever simplify and solidify itself again? Or will it get more and more like an infinite pack of firecrackers exploding?

—WILLIAM JAMES (1908)

WORDS

Short words are best and the old words when short are best of all.

—CHURCHILL

CORRESPONDENCE

MONISM AND DUALISM

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: Dr. Levin's article on Monism and Dualism in the July issue of the *Journal* will leave those of us who are interested in philosophy utterly bewildered. He tries to prove Dr. Bailey's "mistake" by discussing the views of Hughlings Jackson, whom he represents as a "monist." He quotes the following passages:

The doctrine I hold is: first, that states of consciousness (or, synonymously, states of mind) are utterly different from nervous states; second, that the two things occur together, that for every mental state there is a correlative nervous state; third, that, although the two things occur in parallelism, there is no interference of one with the other. This may be called the doctrine of Concomitance.

This view, of course, was not introduced by Jackson, but is the well-known philosophy of Leibnitz. I am sure that Jackson expected his readers to realize this because Leibnitz was well known in Jackson's time. It is the strongest expression of dualism ever proposed. Mind and Matter (Leibnitz thought) are concomitant, but independent, like two clocks, one of which has hands to show the hour, the other a gong to ring the hour. If they are synchronous, a casual observer may believe that the fact that the gong of one clock rings when the hands on the other clock show the full hour must be based on an "interaction" between the clocks; actually, they are merely synchronous. The Lord has created the world so perfect that this synchronism is established forever. Jackson's only reservation was that being a physician, not a philosopher, he would not have to say anything about the reason for the synchronism, and did not need Leibnitz's religious explanation.

Having quoted Jackson's belief in the theory of Parallelism, Dr. Levin continues: "To put the matter into other words, mental states are but the epiphenomena of physical

states in the brain." This, however, is not "putting the matter into other words" but rather presenting an entirely different, though equally well-known theory, the theory of the mind as epiphenomenon. It is difficult to imagine that someone could identify or combine these two, for Parallelism is dualistic; it needs two parallel concepts—there are no "one-piece parallels." The theory of the epiphenomenon (originating with the ancient atomist, Democrit, etc.) is monistic. Here the assumption is that there is *only* Matter; what appears as Mind is nothing more but like the flame which appears as an epiphenomenon when wood oxidizes; a spectacular, but in itself non-existing, meaningless epiphenomenon.

While I was still pondering which of these views Dr. Levin accepts, or how he can combine them both into one theory, I was suddenly finding myself confronted with a third, again different theory. "Psychic event *can* influence behavior" we are suddenly told. He presents a "Theory of Interaction." Why it should be important whether interaction is immediate, or "mediated by cerebral mechanism" (or maybe by pineal mechanism, as the famous dualist Descartes thought), is a bit difficult to understand. It's interaction and dualism in any case. If *one* can influence the *other*, we are dealing with two phenomena, and so have now switched back to dualism and to Dr. Bailey's claim of the implied dualism in psychodynamics, which Dr. Levin tries to deny.

What is that "Mind" which can influence the body? Is it Plato's substantial Mind? Kant's transcendental Mind? Dr. Levin does not tell us; and his example of the child who was scared by a dog and shows behavioral changes later on is not illuminating, either. What happened when the child was "frightened by a dog?" A physiological fright reaction with body influencing mind? Or maybe a psychological trauma with mind influencing body? Concomi-

tance? Epiphenomena? Interaction? Which one is it?

But must we psychiatrists continue to fight each other's philosophy? Is there none which provides a basis suitable for all? Many modern scientists (including Albert Einstein) find the philosophy of Spinoza strangely modern. Benedict Spinoza, the heretic philosopher, believed that there is only *One* world. But it is like an optical lense with two surfaces, one convex, and the other concave. These may appear like two different, independent phenomena to an observer, for he sees nothing else. But actually these two surfaces are indivisibly

One. And so (Spinoza feels) *Reality* is only *One*, but offers two aspects: Body and Mind, Matter and Spirit. Each change of this reality will affect both aspects (though not necessarily in the same degree). Here we have neither independent concomitance, nor an epiphenomenon, nor an interaction. But an identity of the psychobiological organism, which merely appears to us human beings as a dual phenomenon. Would not such a philosophy, I wonder, suit both, Dr. Bailey as well as Dr. Levin?

Hans S. Unger, M.D.,
Buffalo, N. Y.

REPLY TO THE FOREGOING

Editor, THE AMERICAN JOURNAL OF PSYCHIATRY:

SIR: Prudence warns me not to engage Dr. Unger in a dispute over the meaning of monism and dualism, as his competence in philosophy is obviously greater than mine. The object of my article was to invite attention to some concepts, mainly those of Hughlings Jackson, which appear to be of value to the psychiatrist and the student of behavior. I stand by the substance of the article, but will entertain criticism as to the propriety of the philosophical terms I have used.

Monism and dualism have many different meanings. I use the terms in the sense of Lord Cohen, who wrote, "The ultimate goal of science is a universal monism." In the same sense the chemist Wilhelm Ostwald, as reported by Heinrich Klüver, declared at the turn of the century, "I open the monistic century." In this usage the monist, it seems to me, is he who believes that all behavior (including mentation, which is internal be-

havior) is the product of cerebral activity. Psychic activity is "concomitant" with cerebral activity.

Dr. Unger says that Jackson's doctrine of concomitance is "the strongest expression of dualism ever proposed." This is hard to accept (in the sense of Lord Cohen and Ostwald). Jackson was a monist and nothing else. The exponent of dualism was Laycock, as shown by the citations given in my article.

Mind and brain are two things, and *dual* means two, but this is a mere accident of semantics, and not a reason to designate psychophysical parallelism as dualism.

A minor point: I do not claim that Jackson introduced the doctrine of concomitance, nor did he. Jackson named a dozen earlier writers (including Leibnitz) who had proposed essentially similar ideas. (See the *Selected Writings*, volume II, page 84.)

Max Levin, M.D.,
New York, N. Y.

NEWS AND NOTES

FELLOWSHIPS, NEUROPHYSIOLOGY, NEUROANATOMY.—New York University Medical Center is offering a 3-months Training Fellowship with stipend of about \$1,000 in neuroanatomy and neurophysiology, beginning March 1, 1962. Candidates holding the M.D. or Ph.D. degree and interested in teaching or research in these subjects are eligible. Applications should be in by January 1, 1962. For information apply to: Dr. Louis Hausman, department of anatomy, New York University School of Medicine, 550 First Ave., New York 16, N. Y.

LINDAUSER PSYCHOTHERAPIEWOCHE.—The 12th Lindau Psychotherapy-week will be held from April 30-May 5, 1962. The main items will be the physical symptom as psychotherapeutic problem. In 2 morning sessions the theme "Psychotherapy in Medical Institutions" will be dealt with. In afternoon sessions there will be opportunities for practical experience in the important phases of psychotherapy. Related exercises will be dealt with during the week.

For information write to the Secretariat of the Lindauer Psychotherapiewoche, München 2, Dienerstr. 17.

BIRTH CONTROL.—*New Medical Materia*, Sept. 1961, publishes the results of that journal's latest survey in which several thousand doctors participated: 44.1% of obstetricians and gynecologists and 25.3% of general practitioners give birth control advice routinely; 50.7% of all doctors give such advice on request of patients; only 17.7% of all doctors reported that they never gave such advice.

The returns published were not broken down as between Catholic and non-Catholic doctors.

U. S. PUBLIC HEALTH SERVICE SUPPORT OF COMMUNITY MENTAL HEALTH SERVICES.—Funds budgeted for this purpose during 1961 totalled \$91 million, an increase of about 100% since 1957.

An analysis of State legislative actions made by the National Institute of Mental Health reveals that during the current year 8 State legislatures enacted major new legislation affecting community mental health. In one year 1960-1961, total Federal, State, and local funds budgeted in State plans for these purposes increased by 41% from \$65,000,000 to \$91,000,000. The latter figure included Federal funds amounting to \$6,000,000—less than 7% of the total. Ten years ago, Federal funds accounted for 27% of total budgeted funds.

Under provisions of the National Mental Health Act passed in 1948, all the States and Territories now share in Federal funds which are allocated on the basis of the State's population and financial need. Under regulations all States must match every dollar of Federal aid with one State dollar.

ACADEMY OF PSYCHOANALYSIS OFFICERS AND TRUSTEES, 1961-1962.—President, Roy R. Grinker, Sr., M.D., Chicago, Ill.; President-Elect, Sandor Rado, M.D., New York, N. Y.; Past-President, Frances S. Arkin, M.D., New York, N. Y.; Secretary, Joseph H. Merin, M.D., New York, N. Y.; Treasurer, John L. Schimel, M.D., New York, N. Y.; Trustees, Nathan W. Ackerman, M.D., Irving Bieber, M.D., Ralph M. Crowley, M.D., Marianne H. Eckardt, M.D., Don D. Jackson, M.D., Janet Mack Rioch, M.D., May E. Romm, M.D., Leon Salzman, M.D.

The mid-winter meeting of the Academy will be held at the Hotel Commodore, New York City, Dec. 9-10, 1961. The main subject of the 2-day meeting will be Psychoanalytic Education.

DR. GITELSON HONORED.—At the last Congress of the International Psycho-Analytic Association in Edinburgh, Scotland, in July 1961, Dr. Maxwell Gitelson of Chicago was elected President. In this office he is successor to such eminent men as Ernest Jones, Jung and Abraham.

At the present time Dr. Gitelson has tak-

en temporary leave from his practice to accept the visiting Sloan Professorship at the Menninger Clinic.

DIVISIONAL MEETING N. Y. STATE BRANCHES APA.—This biennial meeting will be held Nov. 10-12, 1961, at the Hotel New Yorker, New York City.

The theme will be a multi-disciplinary report of studies on human behavior by scientists, philosophers, and psychiatrists. Among topics to be discussed will be The Biochemistry of Behavior, Genetics in Psychiatry, Physiological Basis of Behavior, and Animal Behavior.

Six scientific sessions and 4 panel meetings are planned for the 3-day meeting.

DR. CLOUTIER TO HEAD WORLD FEDERATION FOR MENTAL HEALTH.—Dr. François Cloutier, F.R.C.P. and a member of the American Psychiatric Association and the Canadian Psychiatric Association, likewise the Association of French speaking Physicians, has been appointed Director of the World Federation for Mental Health succeeding Dr. J. R. Rees of London.

Dr. Cloutier will take office in January 1962. He is a resident of Montreal.

DR. KETY SALMON LECTURER, 1961.—The annual Thomas William Salmon Lectures

will be delivered on Monday, December 4, at the New York Academy of Medicine, 2 East 103rd Street, New York, at 4:30 P.M. and 8:30 P.M.

The 1961 lecturer will be Seymour S. Kety, M.D., Henry Phipps Professor of Psychiatry at the Johns Hopkins Medical School. Dr. Kety will speak on "The Implications of Biochemistry for Psychiatry," discussing in the first lecture "The Basic Chemistry of the Nervous System," and in the second "The Application of Biochemistry to Problems of Psychology and Psychiatry."

The Salmon Lectures, which have been given since 1932, are under the aegis of the Salmon Committee on Psychiatry and Mental Hygiene. The committee is appointed by the Council of the New York Academy of Medicine. The Lectures are published later in book form.

ISRAEL S. WECHSLER LECTURE.—Dr. Oliver H. Lowry, Professor and Director of the Department of Pharmacology, Washington University School of Medicine, St. Louis, Mo., will deliver the seventh annual Israel S. Wechsler Lecture on December 8, 1961 at 8:30 P.M. in the Blumenthal Auditorium of the Mount Sinai Hospital, New York City.

Dr. Lowry's lecture is entitled : "Challenges in the Study of Brain Chemistry."

OUTGROWING WAR

The human record began with warfare, which will remain a dominant occupation until mankind attains a spiritual level higher than that of any of the gods he feared and worshipped.

—ARISTOPHILUS

GODS

As our knowledge of the gods increases, they recede ; as we penetrate farther, they eventually vanish ; only then can we appreciate them.

—ARISTOPHILUS

ENES AND PROGNOSIS

Consider the work of God : for who can make that straight which He hath made crooked ?

BOOK REVIEWS

ACTION FOR MENTAL HEALTH. The Final Report of the Joint Commission on Mental Illness and Health. (New York : Basic Books, Inc., 1961, pp. 338. \$6.75.)

Billed as a "Program for Meeting the National Emergency," the report provides much that is useful for future programming but makes its greatest contribution in bringing together the consensus of leading authorities, providing material on certain studies carried out for its purposes, and broadening the vision of mental health planning toward an appreciation of basic conditions which underlie some of the formidable problems of today.

This volume is, in part, a summation of the work of the members of the commission, the staff, and editors, task forces, advising committees and consultants who, guided by the Committee on Studies, finally produced 10 volumes. The titles of these suggest the scope and depth of the total effort. These are : Current Concepts of Positive Mental Health (Marie Jahoda) ; Economics of Mental Illness (Rashi Fein) ; Mental Health Manpower Trends (Albee) ; Americans View their Mental Health (Gurin, Verhoff, Feld) ; Community Resources in Mental Health (Robinson, DeMarche, Waggle) ; and Epidemiology and Mental Illness (Plunkett, Gordon). These are now available from Basic Books, Inc., NYC. In preparation : The Role of Schools in Mental Health (Allin Smith, Goethals) ; the Churches and Mental Health (McCann) ; New Prospectives on Mental Patient Care (Schwartz, Schwartz, Field, Mishler, Olshansky, Pitts, Rappaport, Vaughan) ; and Research Resources in Mental Health (Soskin). Recommendations are summarized in the beginning and also discussed in the final chapter. They contain 4 main headings :

I. *Pursuit of Knowledge* : An important contribution is the philosophy "that science and education are resources like natural resources—and that they deserve conservation through intelligent use and protection and adequate support—period." "What is most needed (in Research) is a balanced portfolio," with emphasis on basic, long-term, diversified support of persons and ideas assuming the necessary calculated risk. The need is for capital support for careers—careers made attractive enough to hold young scientists and offering assistance to eligible educational institutions. The report endorses the Jones Report (U. S. Senate Committee on Appropriations, 1960). Since the

volume on Research is not yet out, no comment can be made on the justification for these points of view. They appear, however, to coincide with commonly accepted ideas.

II. *Better Use of Present Knowledge and Experience* : (A) Manpower—A major contribution is made toward recognition of the deficits in the manpower pool from which mental health personnel are drawn. (B) Relations of Mental Health Manpower to the Whole Field of Education and Career Choice—but solutions to what are presented as insolvable shortages do not differ from ideas which have been commonly mentioned for sometime and these are not specifically presented.

There is reason to believe that somewhat more optimism is justified in the light of developments in social psychiatry and the shift in methodology which appears to be in the making. The recommendation for income tax deduction for educational expenses is an interesting approach towards increasing the responsibility of individuals for general education in their own families. The comments on the uses of volunteer services and the place of churches in mental health are useful but leave a sense of imbalance since college students are not often available and use of volunteers is increasing fast in other ways. Useful sections include : services to mentally troubled people (defined as mentally ill in early stages), immediate care, intensive treatment of acutely ill, and care of chronic patients gives a review of a variety of approaches. Suggestions as to the use of large state hospitals are controversial and impractical but may aid progress because of their provocative nature. Sections on after-care and rehabilitation services are especially good, but it could be added that Day Hospitals, etc. are equally valuable in diverting a patient from entering a hospital or assisting him after he leaves. Again, the volume on "New Prospectives on Mental Patient Care" is not yet available and we do not know how well the justifications are developed for the specific recommendations.

III. *Public Information on Mental Illness* : Lays the basis for a sound program for citizen groups.

IV. *Cost* : The major thesis is : "Expenditures for public mental patient services should be doubled in the next 5 years—and tripled in the next 10." The principal recommendation is that states and federal government should share the cost of state and local mental patient

services with federal government providing up to one-third of state costs. This is not as radical as it sounds considering the growth in public assistance and social security funds emanating from the federal government, but it is another large step towards federalization of local services. Emphasis in increased services and a sound standard of care and treatment would have been more valuable.

The commission report neglects to make any mention of the formidable array of individual, private, and voluntary hospital services which already furnish an appreciable amount of the psychiatric services in the nation. Therefore, the statement, "Our proposal is the first one in American History that attempts to encompass the total problem of public support of mental health services and to make minimum standards of adequate care financially possible" must be criticized for its assumption that public support shall encompass the total problem. This is both contrary to the present situation and contrary to American tradition. For example, in one state last year, 25,000 admissions to state hospitals occurred while, at the same time, 22,000 admissions were received in non-governmental, licensed mental institutions and 24,000 admissions in psychiatric units of general hospitals, some of which were voluntary hospitals and some of which were county hospitals. The commission might have made an equally radical recommendation in the opposite direction. That is, that responsibility for the cost of psychiatric treatment services be shifted from the current 85% tax support and 35% non-tax support to a 50-50 division of responsibility between individual, private and voluntary resources, including prepaid insurance on the one hand, and federal, state, county, and municipal tax resources on the other (the California Plan). The commission also overlooked the opportunity to demand parity for persons with mental disorders in terms of equal sharing of federal monies from public assistance, total disability and old age medical care (Kerr-Mills Bill) as are received by persons suffering from other diseases.

A glaring omission is the lack of reference to mental retardation which is the second in the list of 7 major categories of mental disorders named in the official nomenclature of the A.M.A. and APA. The Cinderella of mental disorders is thus delayed another eon of time in finding her golden slipper. The fact that NIMH had made a sizable grant to the National Association for Retarded Children to study retardation does not justify the omission. Periodic reference on how subject matter treated in this comprehensive report also applied to mental re-

tardation would have been easy and quite helpful.

The staff, particularly the Director, Dr. Jack Ewalt, and Mr. Greer Williams, who is responsible for its clarity, punch, and forceful dictation, deserve great credit and the thanks of the nation. In spite of some omissions, this volume and all 10 volumes are strongly recommended for careful reading and study.

DANIEL BLAIN, M.D.,
Sacramento, Calif.

THE NEUROCHEMISTRY OF NUCLEOTIDES AND AMINO ACIDS. A Symposium of the Section on Neurochemistry, American Academy of Neurology. Edited by Roscoe O. Brady and Donald B. Tower. (New York : John Wiley & Sons, Inc., 1960, pp. 292. \$10.00.)

For a long time, carbohydrate metabolism has occupied the center of the stage in neurochemistry but interest is now focussing more and more on the metabolism of nitrogenous and lipid substances. The present volume is a record of the transactions at a symposium organized by the Section on Neurochemistry of the American Academy of Neurology, held in April, 1958.

The book's first part is mainly devoted to an account of the acid-soluble nucleotides and their coenzyme functions, most of them applying to nervous and non-nervous tissue alike. Topics of neurochemical interest include the function and occurrence of guanine nucleotides in brain, the role of cytidine nucleotides in the biosynthesis of phosphatides and of uridine nucleotides in the biosynthesis of cerebrosides, and the neurological effects of the acetylpyridine analogue of nicotinamide dinucleotide. The last chapter of this section, misleadingly entitled "Neurochemistry of Polynucleotides" is for the most part a study of the *in vitro* interaction of nucleic acids and related polymers with a fluorescent dye. Important though its implications may be, it seems somewhat out of place. Only passing reference is made to the work of Caspersion ; that of Hyden or Edström is not mentioned at all although it offers perhaps the richest promise of linking polynucleotide metabolism to neural function.

The second part of the book deals with selected aspects of the neurochemistry of amino acids and their derivatives. Neurohormones, monoamine oxidase activity and phenylketonuria are briefly surveyed. The metabolism and possible function of γ -aminobutyric acid in the brain and the microdistribution of the principal enzymes responsible for its formation and breakdown are expertly reviewed. Asparagine

and glutamine are the subjects of another detailed discussion. In the final chapter, experiments bearing on the metabolism and turnover of brain proteins are reported.

The formal papers are followed by discussions. In a final summing-up, the editors fill in some gaps, take stock of the present position and assess the outlook for future research.

The contributions are, on the whole, well-written, concise and competent. They provide a useful introduction to the field.

H. WEIL-MALHERBE, M.D., D.Sc.,
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Washington, D.C.

RECENT ADVANCES IN BIOLOGICAL PSYCHIATRY.

Vol. III. Ed. by Joseph Wortis, M.D. (New York and London : Grune & Stratton, 1961, pp. 241, illus., \$9.75.)

In his foreword, Editor Wortis speaks of the origin of the Society of Biological Psychiatry in 1947 and its purpose to give fresh emphasis to "the neural, the neurologic, the physical, the physiologic side of psychiatry—at the time when psychological, and especially psychoanalytic, aspects of psychiatry were being so strongly emphasized that the physical basis of mind was often neglected or forgotten." Membership in the Society "has always been limited to those who have demonstrated their capacity for experimental work."

The present volume contains the scientific papers read at the 15th annual meeting of the Society in June, 1960.

Hoch, in his presidential address, reviews the great gains that biological psychiatry has made in recent decades in the treatment of many forms of mental illness, and points also to areas where more intensive work must still be done, particularly where etiology is so obscure. He sees psychological activity as part of the total biological functioning of the individual, and psychotherapy simply as a feature of the total treatment process. He points out that the pharmacological treatment of schizophrenia "is symptomatic and not etiological," and that "appraisal of the efficacy of these new treatments should be done effectively, devoid of the usual sniping that they are no good because they do not fit into certain psychodynamic preoccupations."

Hoff of Vienna delivered the Academic Address, sponsored by the Manfred Sakel Foundation. He points to the hereditary taint in both schizophrenia and manic-depressive illness, this factor being more prominent in the latter. He traces psychological symptoms of schizophrenia due to defective energy metabolism in

certain brain areas "triggered by severe somatic or more often by psychological stress."

Hoff reports: "In most countries of the world, 39 percent of all patients suffering from relapsing depression die in the following 15 years by suicide."

Treatment of schizophrenia is adjusted to the form the psychosis takes. Insulin is regarded as "a basic therapy. It opens a door through which the patient may be reached." In Vienna at least 50 coma hours are usual. Group therapy, occupational therapy and drug treatment are also fitted into the therapeutic program.

Hoff describes also the carefully planned management of the endogenous depressions, relying heavily on ECT. "The shock treatment of endogenous depression is certainly one of the most successful forms of therapy in the whole field of medicine."

Lauretta Bender reports a very careful study of the vexed question of the relationship of childhood schizophrenia and epilepsy. Meduna (1937) had postulated that those two conditions were "biologically antagonistic." Hoch (1843) had concluded from an extensive study of adult patients that schizophrenia and epilepsy, while not pathologically related, were also not antagonistic to each other, in the sense that a given case could be considered schizophrenia with "symptomatic" epilepsy or epilepsy with "symptomatic" schizophrenia.

Bender analyzed 51 childhood cases considered schizophrenic that also had convulsive disorders. Thirty of these, she concluded were "essentially organic in etiology." In none of these 30 was there a clear family history of schizophrenia (in contradistinction to cases of "true" childhood schizophrenia). The remaining 21 cases showed either "typical epilepsy with schizophrenia" or were "typically schizophrenic" with atypical convulsive symptoms which did not yield to drugs normally effective in fits. Bender's findings were therefore essentially in agreement with those of Hoch 17 years earlier.

The fact that 68 research workers are represented in this book, either by original studies or in the discussion of the papers, is evidence of the expanding interest in the biologic basis of mental disorders and the fruitfulness of such studies as here described.

C.B.F.

THE SOCIAL EPIDEMIOLOGY OF MENTAL DISORDERS. By E. Cartly Jaco. (New York : Russell Sage Foundation, 1960, pp. 228, \$3.50.)

The author presents a study made in Texas

to check the reliability of, or add to, generally accepted concepts regarding demographic, ecological, social and cultural factors in mental disorders. In spite of most careful planning, execution and analysis, inconsistencies in the various racial, sex, age, geographic, educational, occupational, marital, religious and socio-economic groups prevented drawing general conclusions regarding causal relationships in psychoses. Nevertheless, this is a very valuable report because it asks fundamental questions, emphasizes the need for answers, and provides a basis for further studies which might enhance our understanding of mental disease. The bibliography is extensive, the index complete, the format and printing of the narrative, tables and reproductions of high order. The report is to be highly recommended to all concerned with mental disorders.

N. E. MCKINNON, M.D.,
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School of Hygiene,
University of Toronto.

MEDICAL, SURGICAL AND GYNAECOLOGICAL COMPLICATIONS OF PREGNANCY. By The Staff of the Mount Sinai Hospital, New York City. Edited by Alan F. Guttmacher, M.D., and Joseph J. Rovinsky, M.D. (Baltimore : The Williams and Wilkins Co., 1960, pp. 604. \$16.50.)

This volume is the result of the collaboration of the staff of a large general hospital where consultants in all the various medical and surgical specialties have conducted clinics to which obstetrical patients suffering from a wide variety of complications have been referred and studied in detail. As a result, a reference book has been compiled giving authoritative answers to major and minor problems which may confront the obstetrician who undertakes the care of pregnant woman.

To anyone who has practiced obstetrics for a long period of time it emphasizes the change which has taken place in adequate antenatal, intrapartum and postpartum care. No longer are the mechanical problems of childbirth the predominant responsibility of the obstetrician, but the modern obstetrical physician must have detailed knowledge of a wide range of pathological processes, the importance of these conditions being frequently accentuated by the metabolic strain of pregnancy.

The critic will search in vain for omissions in this comprehensive work. The section on heart disease presents an up-to-date consideration of this important complication. Haematologic problems and endocrine disorders, including diabetes, are dealt with clearly and in an

authoritative manner. The sections dealing with neurological complications and mental and emotional problems are particularly interesting especially as it is unusual to see them dealt with at length in an obstetrical text. Virus diseases and an appreciation of the basic problems of congenital abnormalities as well as the problems of malignant disease, both of the genital tract and breast, are outstanding features of this excellent book.

W. G. COSBIE, M.D.,
Toronto, Can.

GENERAL ENDOCRINOLOGY. 3rd Ed. By C. Donnell Turner. (Philadelphia : W. B. Saunders Co., 1960, pp. 511.)

This is a completely rewritten version of a book which has established itself as a standard text on general endocrinology as a basic science. The approach is even more experimental than in previous editions, and while the importance of the applied viewpoint is recognized the purpose of the present volume is to convey the basic facts. The increasingly chemical development of the subject is reflected in the greater attention given to the chemistry of endocrinology, and there has been a greater addition of comparative material and an elimination of virtually all clinical references. The illustrations, the chapter references, and the text combine to make the present edition of *General Endocrinology* the most useful book of its kind.

ASHLEY MONTAGU, PH.D.,
Princeton, N. J.

HUMAN PITUITARY HORMONES. Vol. 13. Ciba Foundation Colloquia on Endocrinology. Edited by G. E. W. Wolstenholme and C. M. O'Connor. (Boston, Mass. : Little, Brown & Co., 1960, pp. 336.)

The Ciba Foundation Colloquium on human pituitary hormones was held in Buenos Aires in 1959, honoring Dr. B. A. Houssay, Argentina's distinguished endocrinologist. Over thirty leading investigators from Europe and the Americas contributed research data for discussion. Major emphasis was placed on human growth hormone with discussion of its preparation, purification, identification in human serum by immunological methods, and metabolic effects in human subjects. Preparation and purification of human follicle stimulating hormone was also discussed, along with observations of its effect in human beings. In conjunction with chorionic gonadotropin, human FSH has produced apparent ovulation in infertile females, a feat never accomplished with infra-human gonadotropins. Final sections of the

colloquium described experiences with new methods of measuring and isolating other human pituitary factors, adrenocorticotropic, melanocyte stimulating, and thyroid stimulating hormones.

Informal discussion which follows each formal presentation contributes measurably to analysis of the data. The volume maintains the high standard set by previous Colloquia in Endocrinology, which have consistently provided recent reliable research reports and thoughtful discussion of new knowledge in the field.

LORNE D. PROCTOR, M.D.,
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PRINCIPLES OF HUMAN GENETICS. By *Curt Stern*. (San Francisco and London : W. H. Freeman and Co., second edition, 1960, pp. 753. \$9.50.)

In recording the publication of the first edition (1949) of "this masterpiece of an elementary textbook for students of human and population genetics" in the Journal (Vol. 107, p. 879), this chronicler was moved to place the event into the category of memorable occasions. What is more, he never had any reason afterwards to regret the choice of that superlative classification.

It is true that the appearance of the new edition (1960) was long in coming, obviously because of the many recent advances in the scientific areas covered. However, waiting a few years for the thorough revision has been definitely worthwhile. As to the size of the second edition it may be noted that it has grown considerably, from 617 to 753 pages and from 197 to 285 illustrations, in order to allow for a smooth incorporation of newly discovered data. The main thing is, however, that the superior standard of the widely used text has been maintained throughout. In fact, this is probably one of the first current books on human genetics that was not hopelessly outdated at the time it appeared in print.

While the general outline of the first edition has been more or less retained, it is significant that the new version of the book has undergone an imperceptible change in its mood. The nature of this change is best illustrated by the two formulations of a statement made in the introduction. In the first edition, the author conceded apologetically that "man is an unfavorable object for genetic study." In the second edition, this statement is formulated as follows : "At first sight, man appears to be an unfavorable object for genetic study." In this unobtrusive manner characteristic of the au-

thor's fine scholarship, the revised edition reflects that remarkable increase in the degree of confidence in the understanding of genetic phenomena in man, which was gained during the past decade.

Among newly added chapters is one concerned with "genetic hazards of radiation" (26 pages). The chapter "linkage and crossing over" has been subdivided into two, one dealing with different types of linkage, the other with the detection of linkage. The chapter on "heredity and environment" has been even more expanded and now consists of three separate sections entitled "types of twins"; "physical traits"; and "mental traits." The new chapter on mental traits begins with a series of examples taken from animal behavior studies, and the various sections dealing with the causes and effects of mutations have been similarly enlarged.

Of course, the new version of the section on "chromosomal sex" includes a lucid discussion of the cytogenetics of Turner's and Klinefelter's syndromes as well as of Barr's sex-chromatin bodies, and the chapter on "genic action" contains up-to-date information about the haptoglobins, the structure of haemoglobin, and the biochemistry of the sickle-cell trait. The formation of hybrid molecules in heterozygotes is briefly mentioned, while the section on inborn errors of metabolism still seems incomplete. On the other hand, the lists of references at the end of each chapter have been thoroughly revised and will prove to be helpful guides to further reading.

In the second edition, too, the most commendable features of the book are that the author neither talks down to the reader nor ever pretends that human genetics is without its own brand of technical difficulties and methodological dilemmas. Together with these dual qualities of modesty and scholarly integrity, it is the clearness of the presentation of a highly complex subject which makes the book what it was called 10 years ago, "an authoritative guide to the basic principles and dynamic potentialities of human heredity."

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EPIDEMIOLOGIC METHODS. By *Brian MacMahon, Thomas F. Pugh and Johannes Ipsen*. (Philadelphia and Montreal : J. B. Lippincott Co., 1960, pp. 302, illus. \$7.50.)

This volume from the Department of Epidemiology, School of Public Health, Harvard University, presents common-sense methods for the study of health and disease. The authors

emphasize that there are many purely medical problems to be solved before attention can be spared for life's remoter troubles as noted in the WHO definition of health. They point out, too, and demonstrate that simple arithmetic suffices generally for the application of the methods presented. They repudiate any suggestion that any problem can be readily solved by merely turning a couple of epidemiologists loose on it for a couple of days. And they also demonstrate that competent analysis requires, as an imperative basis, a deep understanding of the primary data, their limitations, their attendant circumstances and related events.

The publishers are to be congratulated on the physical readability of the book, including the illustrations, on the attractive format and the complete absence of typographical errors.

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CURRENT APPROACHES TO PSYCHOANALYSIS.
Edited by P. H. Hoch and J. Zubin. (New York : Grune & Stratton, 1960, pp. 207.)

This volume reports the proceedings of the 48th Annual Meeting of the American Psychoanalytical Association, New York City, 1960. The purpose of the symposium, according to the *Foreword*, was ". . . to bring together some of the outstanding current trends in psychoanalysis by providing a platform for representatives of each of these trends." The material is presented in 3 sections titled : Theoretical Approaches, Clinical Applications and Evaluation Studies.

In this type of forum, one would expect a concise presentation of the theoretical approach of each "school of psychoanalytic thought," rather than the introduction of new theoretical conceptions. Five theoretical approaches are summarized, beginning with Dr. Waelder's one-page outline of the psychoanalytic theory of the neuroses in its traditional application to the neuroses. He makes no allusion to the theoretical conceptions of ego psychology nor to modifications in technique that render it applicable to other psychopathological conditions ; this is regrettable. After presenting a brief review of the development of Freud's theories, Dr. Sandor Rado outlines his theory of adaptational psychodynamics. Dr. Clara Thompson re-presents the views of Sullivan and Fromm as the theoretical framework of the W. A. White Institute and Dr. J. W. Vollmerhausen gives those of Horney, which are used at the American Institute of Psychoanalysis. Injury,

as a central point of reference in a concept of psychopathology, is discussed by Dr. Irving Bieber, representing the postgraduate training course at New York Medical College—Flower, 5th Ave. Hospital.

The round table discussion that follows is a bit livelier, with the "schools" represented by Drs. Sidney Tarachow, Lionel Ovesey, Edith Weigert, Harold Kelman and Saul Fisher, respectively. Dr. Ovesey is particularly forthright in stating those aspects of Freudian theory on which those who use the adaptational approach agree ; those on which they disagree and which have been discarded and the results of applying the two frames of reference to one set of clinical observations. The knowledge and wisdom of Dr. Weigert are evident in her open-minded discussion of the various theoretical approaches and her ability to see the common ground and points of reconciliation among many of them. Her overview, which embraces some of the conceptions of a wide range of workers, is stimulating in its invitation to seek answers rather than to cherish theories.

The section on Clinical Applications includes papers on psychoanalytic method and technique by representatives of 3 of the schools, the classical and adaptational points of view being absent. This brief review of the volume cannot do justice to these detailed presentations.

The third part of the book, Evaluation Studies, contains provocative reports on 3 frontiers. Dr. David Levy writes on a method of analyzing clinical observations of relational behavior—a model of methodological procedure applied to an investigation of maternal attitudes. Changes occurring in patients during and after psychoanalytic treatment is reported by Dr. Henriette R. Klein. This study, carried out at the Columbia University Psychoanalytic Clinic by a cohesive group of investigators, evolves a method of evaluating patients' illnesses and responses to treatment. It is a pioneering effort that is continuing and that can contribute to the organization of similar investigations in other psychoanalytic centers. Dr. E. I. Burdock, a research psychologist and biometrist, is the senior author of a study, "Predicting Success in Psychoanalytic Training." How does one choose a candidate for psychoanalytic training who will successfully complete the course of training and emerge as a competent analyst ? This report is a well organized effort to solve another methodological enigma and it broadens horizons for future investigations.

JAMES P. CATTIELL, M.D.,
New York, N. Y.

TEXTBOOK OF MEDICAL PHYSIOLOGY. 2nd Edition. By Arthur C. Guyton. (Philadelphia : W. B. Saunders Co., 1961, pp. 1181, illus-trated. \$15.50.)

This is an entirely rewritten version of a book which was first published in 1956, and upon publication was widely adopted as a teaching text. The enormous amount of labor the author has put into the writing of this book is abundantly justified by the results, for it undoubtedly constitutes one of the most readable, accurate, and certainly most up-to-date texts on the physiology of the human body. The illustrations are admirably clear, and the treatment of the human body as a single functioning organism controlled by a variety of regulatory systems, conveys the proper holistic view of the functioning organism.

In the discussion of the endocrinology of reproduction I miss an account of the steplike developmental processes involved, and I cannot help but think that there ought to be some reference to the physiology of the adolescent sterility period in the human female (as well as the male). But these are mere details. The book is quite admirable.

ASHLEY MONTAGU, PH.D.,
Princeton, N. J.

SLEEP THERAPY IN THE NEUROSES. By B. V. Andreev, M.D. Translated from Russian by Basil Haigh, M.A., M.B., B. Chir. Edited by Joseph Wortis, M.D. (New York : Consultants Bureau Ent. Inc., 1960, pp. 114. \$8.50.)

The author reports on the material which had been collected since 1946 in the Pavlov Institute of Physiology. His conceptual framework underlying the sleep treatment is Pavlovian, mainly the concept of protective inhibition, and the contention that "many pathological phenomena are due, not to disturbance of the structure of nerve tissues, but to temporary inhibition, protective in character." The aim of sleep treatment consists "in the strengthening of this inhibition" which is "restorative and protective in character" in neuroses.

After a brief outline of the history of the method of sleep therapy, the author goes on to discuss the indication for such a treatment.

He indicates that "most of the authors who use sleep treatment think that, of all the various neurotic conditions, the best therapeutic results are attained in neurasthenia and neurasthenic states, especially in those with an asthenic symptomatology." There are disagreements as to the effectiveness of sleep therapy in hysteria and obsessional neuroses.

The method of treatment consists of the following points : 1. Preparation for the treatment ; 2. Forms of therapeutic sleep consisting of interrupted prolonged (fractioned) sleep, and prolonged nocturnal sleep ; 3. Daily program and environmental atmosphere ; 4. Physical hypnotogenic factors, e.g. sound, temperature and weak rhythmic stimuli ; 5. The use of sedatives, mainly barbiturates and avoiding combination of sedatives ; 6. The use of inert substances (sedative substitutes) as conditioned reflex stimuli. This can be realized in some patients if it is used carefully, avoiding prolonged (for several successive days) replacement of sedative by inert substances ; and finally 7. The use of hypnosis and suggestion. The average daily sleep time is from 10 to 13 hours and the duration of sleep treatment from 1-3 weeks.

The author emphasizes repeatedly that "sleep therapy cannot nowadays be regarded as an independent and isolated method of treatment. It can only be effective in combination with other therapeutic factors, to be used in the subsequent period of the patient's stay in hospital or, in some cases, in the period of preparation for subsequent active psychotherapy."

As far as the immediate result of the treatment is concerned, of 87 patients 84% experienced "cure" or improvement. Of these, only 27 patients could be followed, 17 of whom "were in a satisfactory condition when we examined them" (time is undetermined).

The book ends with an extensive bibliography of the Russian literature given by the author, and a supplementary compiled by Dr. Wortis. The work as a whole, in addition to the bibliographies, is a valuable monograph for those interested in this subject.

H. AZIMA, M.D.,
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Montreal, Can.

IN MEMORIAM

ROBERT A. MATTHEWS¹
1903-1961

Custom as well as spontaneous impulse and feeling bring us here today. Friends, relatives, family have gathered here. It is a Meeting, as so often in Philadelphia, without ceremony and ritual, where the Society of Friends has been accustomed to bring people together informally on the basis of community of feeling and dedication. This is a coming together to indicate by our presence many things.

There are many happy memories. The sparkle and alertness of the eyes, showing the keenness, the awareness of things obvious and often deeper implications than were first apparent. There was the not infrequent turning of his head and glance and attention to make sure those present were with him—that they knew and he knew what it was all about. There was a kind of social inclusiveness—his lines of sight with their comprehensive shifting and searching. There was a kindness and warmth and gaiety in his expression,—from the eyes, to the face, to the voice, with its expression of words, phrases, and opinions.

His observations and conclusions came readily but not impulsively and casually. They were restrained and kindly but had cogent, deep and forceful implications.

His pace and gait were lively but not driven. His greetings were friendly, whether the occasion was of serious business or for festivity. He had his repertoires whether of humorous stories and incidents, or of "telling" experiences which drove home a point. He had humor, which brought fun and balance to many occasions : whether his attempts to trim his hair short as a crew cut when there was not so much to clip, or his jolly little cap, or his white coat and black tie for formal occasions.

He had the psychological and the biological in balanced proportions in psychiatry. In his person and in his views the psychic

and the somatic were wholesomely represented.

And some of my memories run to Christmas Eve when, in Pickwickian attire and pixie mood, with solid friendliness and pride he brought his lovely help-mate and jolly children, full of spirit and enthusiasm. They all came to carol and drink a communion of friendship and neighborliness in the warmth of mulled wine.

Other memories also come of him : Doing a job and learning psychiatry, first in far off—at that time isolated, city managed, I was going to say almost zoological, Byberry. Or learning the refinements of psychiatry with Drs. Bond and Strecker in the comforts of the Pennsylvania Hospital. Or in gay New Orleans, where the distractions of Royal and Bourbon Streets, the delicious delicacies, exotic drinks, and jouncing jazz, did not too much divert him from the serious business of improving psychiatric care at the Charité. And as Chairman of the Department of Psychiatry at Louisiana State University he continually strove to improve the quality of psychiatric education in medical schools. The community and the state hospitals also felt his influence—he brought Maxwell Jones from far off England to conferences in the state hospitals.

He had fruitful collaboration with his colleague at Tulane—Bob Heath, who was exploring both the neurological and chemical aspects of schizophrenia, and modifying psychoanalysis.

His calmness, friendliness, resourcefulness, was shown when he was taking me from Biloxi to New Orleans to place me on a plane. He ran out of gas 100 miles from nowhere. I was wild—mildly turbulent as they say of a plane in rough, uncertain going, but I tried to contain myself. Then came his quiet reassurance that I should not worry and that he would arrive on time. Shortly a humble Cajun family in a doubtfully performing auto were pushing us 30 miles to a gas station. They refused any compensa-

¹ Remarks made at the funeral service in Philadelphia on June 27, 1961 by Kenneth E. Appel, M.D.

tion, though obviously in need of it with their huge family of children—so persuasive, so intriguing, was Bob Matthews' appeal.

In Charleston again, helping psychiatric education with his practical discussions on Emergencies in General Practice, or The Importance of Giving Psychiatric Information to the Police Force—giving them an elementary understanding of acute emergencies, the intransigencies and aberrancies of human conduct and how to handle them.

There in a day of delightful Spring weather, surrounded with Southern hospitality, he seemed receptive to tackling the Commissionership of Mental Health of Pennsylvania. With the determined, dedicated Harry Shapiro and the enlightened, sympathetic, Governor Leader, he introduced a new era in the care of the mentally ill in Pennsylvania. It was in his regime that the Western State Psychiatric Hospital with Dr. Brosin burgeoned into one of the great centers of psychiatry in the country; and then the Eastern Pennsylvania Psychiatric Institute, with the persistent and resourceful John Davis, got off the ground and was realizing a dream of a new development of psychiatry in Philadelphia where public psychiatry could offer not only the best in modern methods of treatment, but also could develop a phalanx of basic research, rising to refinements and penetrations that are representative of the best in the world. The state hospitals themselves felt this new influence, for development and progress, in their functions.

And finally in a historic professorship at the great Medical School at Jefferson—where Dercum, Strecker, Keyes, had been his predecessors, he showed leadership in developing psychiatry. He organized a large, successful, aggressive section of psychiatry in the great Jefferson Hospital. He established this with marked success—an undertaking that has been most difficult to achieve in Philadelphia Medical Schools.

With all this—teaching, explorations of new types of service, private practice—he did not abandon his efforts in behalf of public psychiatry, to improve the treatment of those who could not afford the best.

One of my last meetings was on the Med-

ical Board at the Eastern Pennsylvania Psychiatric Institute where we were searching for new methods and procedures in organization and practice. He contributed more than his share of resourceful suggestions to strengthen the foundations of that new institution, forging new precedents and instruments of research in a public hospital.

His home and family were a delight to enter.

There is a presence here we commemorate. It will always be in our hearts and its influences in our minds and decisions. As we commemorate, we dedicate our energies anew to the great and the constructive, taking with us his homely, humorous and balanced views of the ideal and the practical, dedications and directions for which Bob Matthews stood and lived.

Our love to his family and relatives.

When separations come, such as this, I always think of the great religious leaders of the world—but also of Socrates, Gandhi, Father Damien, Pasteur and Schweitzer—lives dedicated to the improvement of the lot of their fellow men. Plato concludes of Socrates: "such was the end of our friend." He was called wise, just and great. Bob Matthews will remain with us as friend, builder and co-laborer in the best of this great tradition. And from Avon come echoes, consoling, warming, energizing—as Bob Matthews would have liked.

"When to the sessions of sweet silent thought

I summon up remembrance of things past,
I sigh the lack of many a thing I sought,
And with old woes new wail my dear
time's waste :

Then can I drown an eye, unus'd to flow,
For previous friends hid in death's dateless night,
And weep afresh love's long since cancell'd woe,
And moan the expense of many a vanish'd sight :

Then can I grieve at grievances foregone,
And heavily from woe to woe tell o'er
The sad account of fore-bemoaned moan,
Which I new pay as if not paid before.
But if the while I think on thee, dear friend,

All losses are restor'd and sorrows end."

**FRANKLIN S. DUBOIS, M.D.
1906-1961**

To the many friends of Franklin S. DuBois, his death on June 24 brought deep distress, but to those of us who worked with him, through the years, on the staff at Silver Hill, where he was Associate Medical Director, it meant irreparable loss as well. His knowledge of neuroanatomy and neurophysiology, and of internal medicine was a broad base on which his knowledge of psychiatry stood, giving him an everpresent awareness of the patient as a whole organism and contributing to his unusual diagnostic acumen and clinical judgment. To his high intelligence, excellent professional training and experience there was added a keen sensitiveness and intuitive understanding, together with a warmth of feeling and a depth of sympathy for those who suffer and are in distress, which is an essential part of the true physician. He was never too tired or too pressed for time to give generously of himself either to his patients or to his associates.

Doctor DuBois was born in Liberty, Indiana, and following graduation from Wabash College entered the Rush Medical College of the University of Chicago, where he was a member of Phi Beta Kappa and of Alpha Omega Alpha. Prior to specializing in neurology and psychiatry and joining the medical staff of Silver Hill in 1937, he was Professor of Anatomy; was active in the development of Connecticut's mental health program; was a past chairman of the Committee on Mental Health of the Connecticut State Medical Society, and at the time of his death was Chairman of the Board of Mental Health of the State of Connecticut. He was the author of many articles in the fields of neurology and psychiatry and was particularly interested in the problems of emotional adjustment in childhood and adolescence. Some of his papers dealing with the developmental

stages of the individual have been widely used for reference in schools and mental health groups.

Doctor DuBois was also active in his contributions to his community. In New Canaan he had served on the Board of Trustees at the Country School and was a member of St. Mark's Episcopal Church.

He was a diplomate of the American Board of Psychiatry and Neurology; a fellow of the American Medical Association, the American College of Physicians and the American Psychiatric Association, and a member of the American Neurological Association. He was an associate attending neurologist of the Vanderbilt Clinic of the Columbia-Presbyterian Medical Center; consultant to the department of psychiatry, Greenwich Hospital, Greenwich, Conn.; and consultant to the department of psychiatry and neurology of the Norwalk Hospital in Norwalk, Conn.

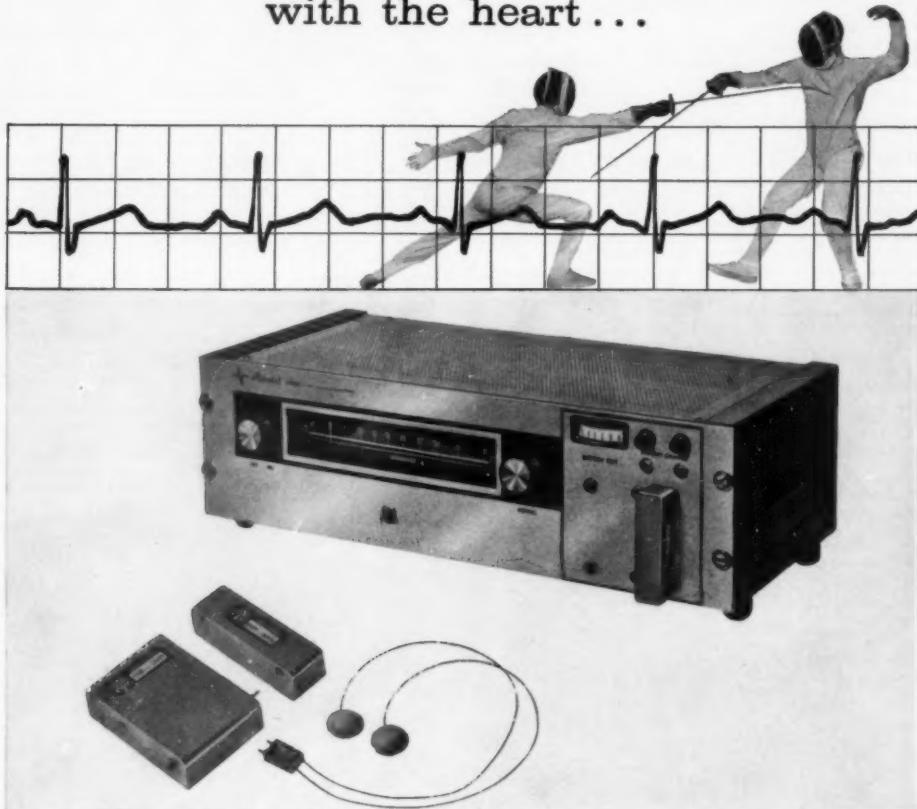
With the recurrence of his malignant disease last spring and his certain knowledge that he was in its terminal stage, Frank DuBois faced death with inspiring courage, and, in spite of physical torture, for weeks and months without complaint, his only concern was for his family, his patients, and his friends. The classic words which Mark Antony spoke would seem applicable to Frank DuBois:

His life was gentle, and the elements
So mix'd in him that Nature might stand up
And say to all the world 'This was a man!'

Doctor DuBois is survived by his wife, Maurine Tompkins DuBois, his two sons, Arthur L., and Franklin S. DuBois, Jr., his parents, Mr. and Mrs. Smith DuBois of Liberty, Indiana, a sister, Miss Charlotte DuBois of Austin, Texas, and two grandchildren.

William B. Terhune, M.D.

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PSYCHIATRIC PRESCRIBING INFORMATION

INDICATIONS: "Stelazine" produces rapid response in many diagnostic categories, including acute and chronic schizophrenias, manic-depressive psychoses, involutional psychoses, chronic brain syndrome and mental deficiency.

ADMINISTRATION AND DOSAGE: Dosage of "Stelazine" should be adjusted to the needs of the individual.

Because of the inherent long action of "Stelazine", patients may be controlled on convenient b.i.d. administration; some patients, on once-a-day administration.

Adult Dosage for Use in Psychiatric Practice

oral (for office patients and outpatients with anxiety): The usual starting dosage is 1 mg. b.i.d. In some cases, a better response is achieved on 2 mg. b.i.d. In the treatment of these patients, it is seldom necessary to exceed 4 mg. a day. (Some patients with more severe disturbances, and discharged mental patients, may require higher dosages.) In some patients, maintenance dosage can be reduced to once-a-day administration.

oral (for patients who are either hospitalized or under adequate supervision): The usual starting dosage is 2 mg. to 5 mg. b.i.d. (Small or emaciated patients should always be started on the lower dosage.) The majority of patients will show optimum response on 15 mg. or 20 mg. daily, although a few may require 40 mg. a day or more. It is important to give doses that are high enough for long enough periods of time—especially in chronic patients.

Optimum therapeutic dosage levels should be reached within two or three weeks after the start of therapy. When maximum therapeutic response is achieved, dosage may be reduced gradually to a satisfactory maintenance level.

intramuscular (for prompt control of severe symptoms): The usual dosage is 1 mg. to 2 mg. ($\frac{1}{2}$ -1 cc.) by deep intramuscular injection q4-6h, p.r.n. More than 6 mg. within 24 hours is rarely necessary. As soon as a satisfactory response is observed, oral medication should be substituted at the same dosage level or slightly higher.

Only in very exceptional cases should intramuscular dosage exceed 10 mg. within 24 hours. Since "Stelazine" has a relatively long duration of action, injections should not be given at intervals of less than 4 hours because of the possibility of an excessive cumulative effect.

"Stelazine" Injection has been exceptionally well tolerated; there is little, if any, pain and irritation at the site of injection.

Dosage for Psychotic and Mentally Defective Children

The dosages given below apply to children, ages 6 to 12, who are either hospitalized or under adequate supervision.

oral: The starting dosage is 1 mg. administered once a day or b.i.d., depending on the size of the child. Dosage may be increased gradually until symptoms are controlled or until side effects become troublesome. Both the rate and the amount of dosage increases should be carefully adjusted to the size of the child and the severity of the symptoms, and the lowest effective dosage should always be used. Once control is achieved, it is usually possible to reduce dosage to a satisfactory maintenance level.

In most cases, it is not necessary to exceed 15 mg. of "Stelazine" daily. However, some older children with severe symptoms may require, and be able to tolerate, higher dosages.

intramuscular: There has been little experience with the use of "Stelazine" Injection in children. However, if it is necessary to achieve rapid control of severe symptoms, 1 mg. ($\frac{1}{2}$ cc.) of "Stelazine" may be administered intramuscularly once or twice a day, depending on the size of the child. Once control is achieved, usually after the first day, the oral dosage forms of "Stelazine" should be substituted for the injection.

SIDE EFFECTS: In the dosage range of 2-4 mg. daily, side effects from "Stelazine" are infrequent. When they do occur, they are usually slight and transitory. Mild drowsiness occurs in a small percentage of patients; this usually disappears after a day or two of "Stelazine" therapy. There are occasional cases of dizziness, mild skin reaction, dry mouth, insomnia and fatigue; rarely, extrapyramidal symptoms.

In hospitalized psychiatric patients receiving daily "Stelazine" dosages of 10 mg. or more, clinical experience has shown that, when side effects occur, their appearance is usually restricted to the first two or three weeks of therapy. After this initial period, they appear infrequently, even in the course of prolonged therapy. Termination of "Stelazine" therapy because of side effects is rarely necessary.

Side effects observed include dizziness, muscular weakness, extrapyramidal symptoms, anorexia, rash, lactation and blurred vision. Drowsiness has occurred, but has been transient, usually disappearing in a day or two.

Extrapyramidal Symptoms

These symptoms are seen in a significant number of hospitalized mental patients receiving "Stelazine". They may be characterized by akathisia, be of the dystonic type, or they may resemble parkinsonism.

akathisia: Some patients may experience an initial transient period of stimulation or jitteriness, chiefly characterized by motor restlessness and sometimes insomnia. These patients should be reassured that this effect is temporary and will disappear spontaneously. The dosage of "Stelazine" should not be increased while these side effects are present.

If this turbulent phase becomes too troublesome, the symptoms can be controlled by a reduction of dosage or the concomitant administration of phenobarbital or some other barbiturate.

dystonias: These symptoms are rare outside of mental hospitals, but they may be observed occasionally in patients who have received "Stelazine" as a mild tranquilizer.

Symptoms may include: spasm of the neck muscles, sometimes progressing to torticollis; extensor rigidity of back muscles, sometimes progressing to opisthotonus; carpopedal spasm, trismus, swallowing difficulty, oculogyric crisis and protraction of the tongue.

The onset of the dystonias may be sudden. A primary characteristic of these symptoms is their intermittency. They may last several minutes, disappear and then recur. There is typically no loss of consciousness and definite prodromata are usually present. Initially, these intermittent symptoms occur in a crescendo of intensity. Then, as the effect of the drug wears off, the intervals between the occurrence of symptoms become longer, and the intensity of the symptoms subsides.

Despite their similarity to symptoms of serious neurological disorders, these dystonias are usually promptly reversible and need not cause undue alarm. They usually subside gradually within a few hours, and almost always within 24 to 48 hours, after the drug has been temporarily discontinued.

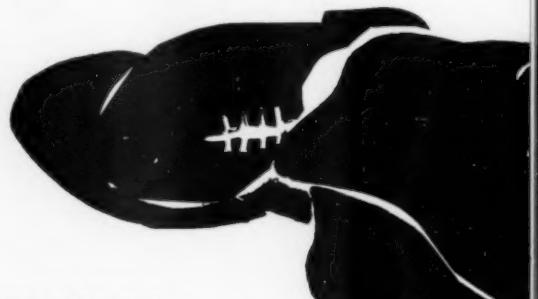
Treatment is symptomatic and conservative. In mild cases, reassurance of the patient is often sufficient therapy. Barbiturates are also useful. In moderate cases, barbiturates will usually bring rapid relief. The dosage and route of administration of the barbiturate used should be determined by the intensity of the symptoms and the response of the patient. In more severe adult cases, the administration of an anti-parkinsonism agent produces rapid, often dramatic, reversal of symptoms. Also, intravenous caffeine and sodium benzoate seems to be an effective and rapid antagonist to the dystonias. In children, reassurance and barbiturates will usually control symptoms. Dosage and route of administration should be determined according to the intensity of symptoms and response of patient. Note: It has been reported that injectable administration of Benadryl® may also be helpful in controlling dystonias.

pseudo-parkinsonism: These symptoms are extremely rare outside of mental hospitals.

Symptoms include: mask-like facies; drooling; tremors; pillrolling motion; and shuffling gait.

Reassurance and sedation are important components of effective therapy. In the majority of cases these symptoms are readily reversible when an anti-parkinsonism agent is administered concomitantly with "Stelazine". Occasionally it is necessary to lower the dosage or to temporarily discontinue the drug.

CAUTIONS: Clinical experience has demonstrated that "Stelazine", a phenothiazine derivative, has a wide range of safety and that there is little likelihood of either blood or liver toxicity. The physician should be aware, however, of their possible occurrence. One of the results of "Stelazine" therapy may be an increase in mental and physical activity. In some patients, this effect may not



be desired. For example, although "Stelazine" has relieved anxiety and, at the same time, anginal pain in patients with angina pectoris, a few such patients have complained of increased pain while taking "Stelazine".

Therefore, if "Stelazine" is used in angina patients, they should be observed carefully and, if an unfavorable response is noted, the drug should be withdrawn.

Hypotension has not been a problem, but nevertheless adequate precautions should be taken when the drug is used in patients with impaired cardiovascular systems.

The antiemetic action of "Stelazine" may mask signs of overdosage of toxic drugs or may obscure the diagnosis of conditions such as intestinal obstruction and brain tumor.

Although "Stelazine" has shown very little potentiating activity, caution should be observed when it is used in large doses in conjunction with sedatives or depressants.

CONTRAINDICATIONS: "Stelazine" is contraindicated in comatoses or greatly depressed states due to central nervous system depressants.

AVAILABLE: Tablets, 1 mg. and 2 mg., in bottles of 50, 500 and 5000. (Each tablet contains 1 mg. or 2 mg. of trifluoperazine, as the dihydrochloride.) Also available, for psychiatric patients who are hospitalized or under close supervision: Tablets, 5 mg. and 10 mg., in bottles of 50, 1500 and 5000. (Each tablet contains 5 mg. or 10 mg. of trifluoperazine, as the dihydrochloride.) **Injection, 10 cc.** Multiple-dose Vials (2 mg./cc.), in boxes of 1 and 20. (Each cc. contains, in aqueous solution, 2 mg. of trifluoperazine, as the dihydrochloride, 4.75 mg. of sodium tartrate, 11.6 mg. of sodium biphosphate, 0.3 mg. of sodium saccharin and 0.75% of benzyl alcohol. **Concentrate** (for hospital use), 2 fl. oz. bottles (10 mg./cc.), in boxes of 4 and 12. (Each cc. contains 10 mg. of trifluoperazine, as the dihydrochloride.)

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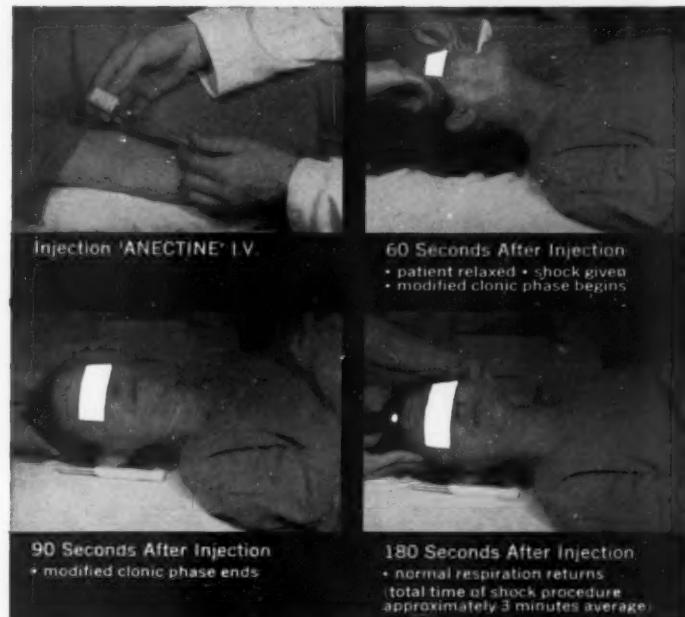


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Havens, L. L.: Dis. Nerv. System 19:1 (Jan.) 1958.

"... recommend its use."

Impastato, D. J., and Gabriel, A. R.: Am. J. Psychiat. 114:698 (Feb.) 1958.

"... treatment of choice."

Michael, K. D., and Wunderman, D. C.: J. Nerv. & Ment. Dis. 126:535 (June) 1958.

"... irrespective of age."

Robie, T. R.: J. M. Soc. New Jersey 52:82 (Feb.) 1955.

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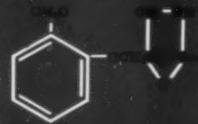
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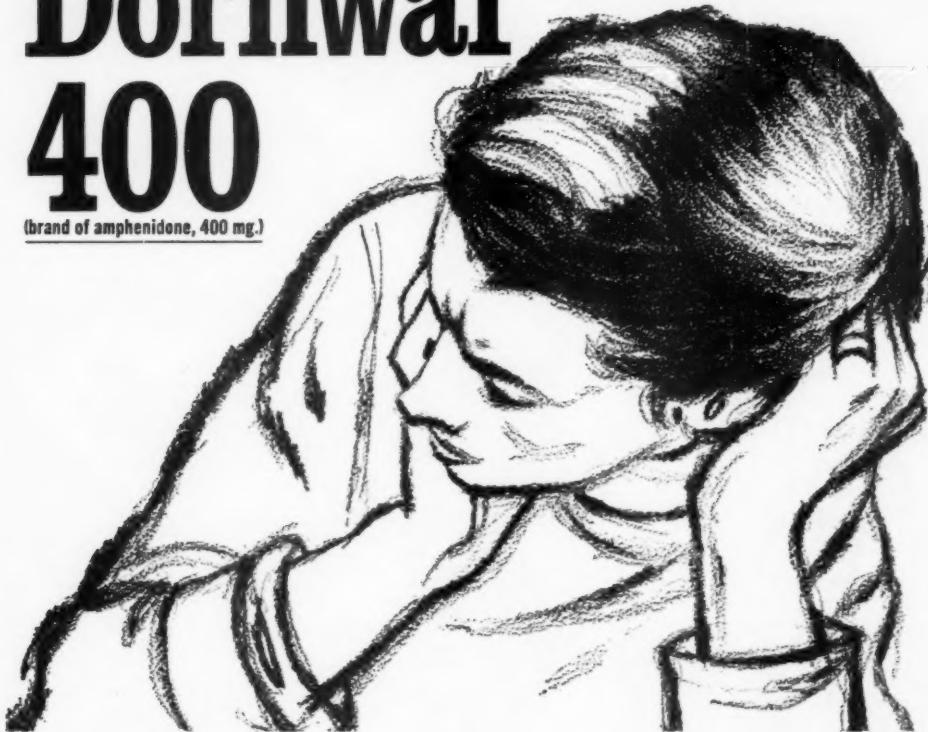
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*Dixon, H. H.; Dickel, H. A., and Dixon, H. H., Jr.: "Clinical and Electromyographic Appraisal of Amino-phenylpyridone," Northwest Med. 60:277 (March) 1961.



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Murray¹ administered parenteral SPARINE (with atropine sulfate, succinylcholine dichloride, and a barbiturate) to 50 patients prior to electroconvulsive therapy. Observations were conducted during 497 individual treatments.

The salutary effects of SPARINE, which Murray attributes to enhancement of barbiturate action, were evident in improved behavior, diminution of agitation following treatment, and prolongation of sleep. No significant blood pressure fluctuations or cardiovascular abnormalities were noted in any of the patients.

Excessive Psychokinetic Activity

Graffeo² selected 180 chronic, hospitalized psychotic patients at random on the basis of increased psychokinetic activity manifested by restlessness and agitation, or complications or lack of improvement with other chemotherapeutic modalities.

SPARINE was administered orally in dosages graded to the psychokinetic activity of the patient.

Of the 180 patients, 72 percent showed marked to moderate improvement in behavior, and no patient's behavior worsened. Almost half of the patients showed marked to moderate improvement in their psychoses; in 3 percent mild regressive tendencies were noted. According to the author: "Promazine [SPARINE] adequately modified the formerly disturbed behavior pattern of the chronic schizophrenic patients so that psychotherapy was facilitated and, as a result, made it possible for 26 patients to be released from the hospital."

Alcoholism

Figurelli³ has found that the use of SPARINE in uncomplicated cases of acute alcoholism controlled symptoms of active delirium, as well as nausea and vomiting, and drastically reduced mortality rates. According to Figurelli "... medication with promazine [SPARINE] enables more rapid control of delirium, eliminates the prolonged and more expensive therapeutic measures which formerly were the only recourse ... and permits earlier return of the patient to gainful occupation." Parenteral SPARINE is usually used initially by Figurelli; oral SPARINE is used for maintenance. No precipitous drop in blood pressure occurred in the series of patients studied by Figurelli.

Note: The degree of central nervous system depression induced by SPARINE has not been great; however, in the acutely inebriated person the initial dose should not exceed that recommended to be sure that the depressant effect of alcohol is not enhanced. SPARINE should not be used in comatose states due to central nervous system depressants (alcohol, barbiturates, opiates, etc.). In patients with cerebral arteriosclerosis, coronary heart disease, or other conditions where a drop in blood pressure may be undesirable, SPARINE should be used with caution.

References

1. Murray, N.: Diseases of Nervous System 27:1 (Aug.) 1960.
2. Graffeo, A.J.: Am. J. Psychiat. 116:842 (March) 1960.
3. Figurelli, F.A.: J. Am. Med. Assoc. 166:747 (Feb. 15) 1958.

For further information on limitations, administration and prescribing of SPARINE, see descriptive literature or current Direction Circular.

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the antidepressant with a significant difference:

• given orally or parenterally, ELAVIL provides PROMPT relief of associated anxiety, tension, and insomnia • followed by control* of underlying depression

*Some depressed patients respond within 5 to 10 days, while others may require up to two weeks or longer to obtain benefit.

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SYMPOSIUM ON DEPRESSION

with Special Studies of a New
Antidepressant, Amitriptyline

A SCIENTIFIC MEETING

NEW YORK, N.Y.
March 6, 1961

EXCERPTS FROM A SYMPOSIUM ON DEPRESSION

ELAVIL.

AMITRIPTYLINE HYDROCHLORIDE

INVESTIGATOR

DUNLOP, EDWIN:
The treatment of
depression in
private practice.

FINDINGS

"Amitriptyline [ELAVIL] has a specific advantage over any antidepressant currently available and I see increasing evidence of its usefulness in reducing tension, agitation and anxiety, as well as in relieving the depressive quality of the illness. Amitriptyline appears... to combine better than any other antidepressant drug the successful treatment of anxiety at one end of the scale and depression at the other. Experience in the past has shown us that, when using electroshock or analeptics, although depression can be relieved, the accompanying anxiety eventually proves more troublesome than the depressive phase of the illness. Amitriptyline successfully bridges these divergent symptoms which are displayed in varying proportions in all depressive syndromes."

"...Approximately one hundred and twenty patients have been studied with amitriptyline during the last fifteen months. It is an effective antidepressant when employed in both hospital and ambulatory patients. Its dependability and freedom from toxicity and severe side effects merit further evaluation on a broader spectrum of depressive disorders."

BENNETT, DOUGLAS:
Treatment of
depressive states
with amitriptyline.

"In those cases showing a good response, early and dramatic improvement in sleeplessness resulted and many patients noted a feeling of relaxation. The ability of some patients to reduce their night sedatives after only a month's treatment was unique in my experience of the treatment of depression."

SAUNDERS, JOHN C.:
Antidepressives: the
pith of affective therapy.

"Its primary action in hospitalized psychotics is antidepressive; this along with its very low rate of side actions make it a drug of potentially frequent application in a broad spectrum of neuro-psychiatric diseases.... Since a large part of any hospital population will reach a plateau if given only a tranquilizer or an energizer, we suggest that amitriptyline alone be given prior to combination therapy, as this drug is easier and safer to administer and produces a significant improvement in a high percentage of cases (60-75)."

OSTFELD, ADRIAN M.:
Effects of an anti-
depressant drug on tests
of mood and perception.

"Finally, it appears that amitriptyline in the doses employed here is relatively effective in depressed states of neurotic proportions. Its freedom from severe side effects in doses that are therapeutically effective seems established in this patient population."

(This symposium was published in
Diseases of the Nervous System,
Volume 22, Section Two—Supplement, May 1961)

INVESTIGATOR

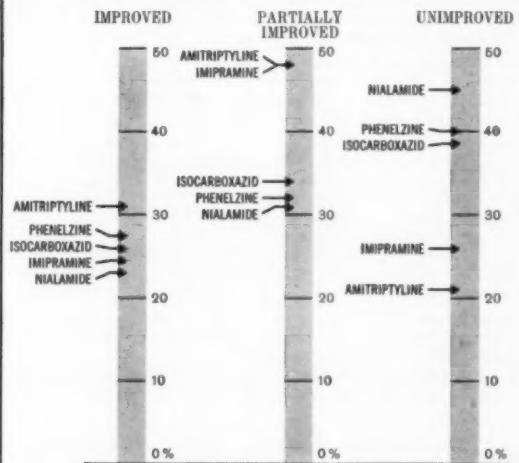
FINDINGS

AYD, FRANK J., JR.:
A critique of
antidepressants.

"Amitriptyline and imipramine induce similar side effects but, generally speaking, those of amitriptyline cause less subjective discomfort in patients than those of imipramine."

"... Many of the factors that favor a satisfactory response to these drugs are also those clinically associated with the expectation of a good reaction to ECT. The danger lies in their general slowness in taking effect which makes their use hazardous for severely depressed suicidal patients who, preferably, should be treated with electroshock therapy. Otherwise, these compounds can be a satisfactory substitute for shock therapy for most depressed patients. Thus, these drugs have lessened the need for ECT. On those occasions when ECT is necessary, if the shock therapy is combined with an antidepressant, ECT can be dispensed with after a few treatments."

COMPARISON OF THERAPEUTIC RESULTS
WITH VARIOUS ANTIDEPRESSANTS



**EXCERPTS FROM A
SYMPOSIUM ON
DEPRESSION**
(continued)

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| INVESTIGATOR | FINDINGS |
|---|---|
| DORFMAN, WILFRED: Masked depression. | "In evaluating the effectiveness of amitriptyline in all these different settings, it was considered to be effective in 17 of the 25 patients (68%)." |
| FELDMAN, PAUL E.: Psychotherapy and chemotherapy (amitriptyline) of anergic states. | "Compared to other energizer compounds, particularly the hydrazines, amitriptyline appears to be relatively nontoxic. The laboratory reports for the most part remained within normal limits. Occasionally, abnormal readings were reported, but these appeared only sporadically and were not related to any clinical findings." |

INDICATIONS: manic-depressive reaction—depressed phase; involutional melancholia; reactive depression; schizoaffective depression; neurotic-depressive reaction; and these target symptoms: anxiety; depressed mood; insomnia; psychomotor retardation; functional somatic complaints; loss of interest; feelings of guilt; anorexia. May be used whether the emotional difficulty is a manifestation of neurosis or psychosis,¹ and in ambulatory or hospitalized patients.^{1,2,3}

USUAL ADULT DOSAGE: Tablets — initial dosage 25 to 50 mg. three times a day, depending on body weight, severity, and clinical disturbances. Dosage may be adjusted up or down depending upon the response of the patient. Some patients improve rapidly, although many depressed patients require four to six weeks of therapy before obtaining antidepressant response. For the ambulatory patient the dosage range for Tablets ELAVIL is 40 to 150 mg. daily. In the hospitalized patient, a daily dosage up to 300 mg. may be required. Injection ELAVIL may be given IM to rapidly calm depressed patients with symptoms of anxiety and tension while instituting therapy of the underlying depression. Initial therapy is 2 to 3 cc. (20 to 30 mg.) IM, q.i.d.

The natural course of depression is often many months in duration. Accordingly, it is appropriate to continue maintenance therapy for at least three months after the patient has achieved satisfactory improvement in order to lessen the possibility of relapse, which may occur if the patient's depressive cycle is not complete. In the event of relapse, therapy with ELAVIL may be reinstated.

ELAVIL is not a monoamine oxidase (MAO) inhibitor. It does, however, augment or may even potentiate the action of MAO inhibitors. Thus, in patients who have been receiving MAO inhibitors, ELAVIL should be instituted cautiously after the effects of the MAO inhibitors have been dissipated. No evidence of drug-induced jaundice, agranulocytosis, or extrapyramidal symptoms has been noted. Side effects with ELAVIL are seldom a problem and are not serious. They are dosage-related and have been readily reversible. Side effects (drowsiness, dizziness, nausea, excitement, hypotension, fine tremor, jitteriness, headache, heartburn, anorexia, increased perspiration, and skin rash), when they occur, are usually mild. However, as with all new therapeutic agents, careful observation of patients is recommended. As with other drugs possessing significant anticholinergic activity, ELAVIL is contraindicated in patients with glaucoma, prostatic hypertrophy and urinary retention.

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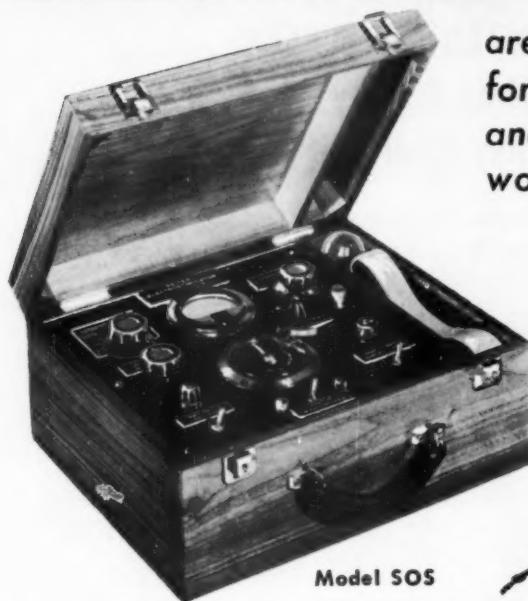
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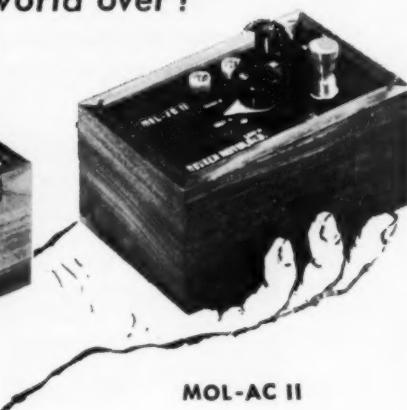
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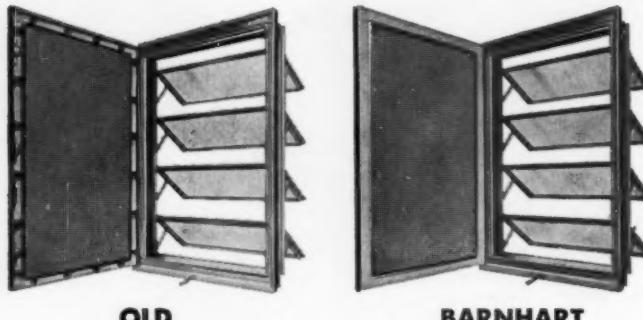
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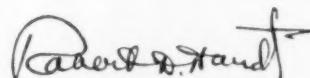
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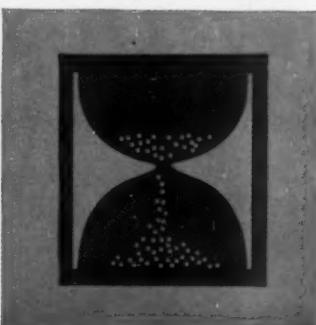
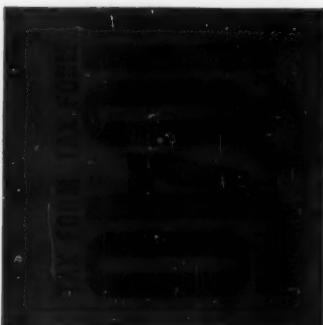
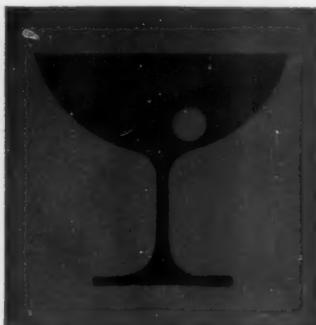
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- ¹⁴Bastian, J. W.: Pharmacology and Toxicology of Hydroxyphenamate. *Ibid.*
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BRAND OF NIACINIDE

IN BRIEF Niamid, brand of nialamide, is 1-(2-[benzylcarbamyl]ethyl)-2-isonicotinylhydrazine, a well tolerated antidepressant that may correct or relieve depression on once-a-day dosage. **Indications:** Depressive syndromes of varying degrees of severity may be responsive to Niamid including: involutional melancholia, postpartum depression, depressed phase of manic-depressive reaction, senile depression, reactive depression, schizophrenic reaction with depressive component, psychoneurotic depression. In neurotic or psychotic patients, Niamid may normalize or favorably modify aberrant or excessive reactions and symptoms of depression such as: phobias, guilt feelings, dejection, feeling of inadequacy, discouragement, worry, uneasiness, distrustfulness, hypochondriacal and nihilistic ideas, difficulty in concentration, insomnia, loss of energy or drive, indecision, hopelessness, helplessness, decreased functional activity, emotional and physical fatigue, irritability, inability to rest or relax, sadness, anorexia and weight loss, and withdrawal from society. In the withdrawn patient, Niamid may elevate the mood so that there is increased activity, increased awareness and interest in surroundings, and increased participation in group activities.

Appetite may be increased and there may be decreased fatigability. Lack of clinical response to other anti-depressant therapy does not preclude a favorable response to Niamid. Relief of depression may also be evidenced by elimination or reduction of the need for somatic therapy, such as electroshock. In patients suffering from depression associated with chronic illness, Niamid may improve mental outlook, reduce the impact of pain, decrease the amounts of narcotics or analgesics needed, and improve appetite and well-being. In patients with angina pectoris,

Niamid has been found to be a useful adjunct to management through reduction in frequency of attacks and pain. **Dosage:** Starting dosage is 75 to 100 mg. on a once-a-day or divided daily basis. This may subsequently be adjusted depending upon the tolerance and response. Responses to Niamid are not usually rapid, and revisions of dose should be withheld until at least a few days have elapsed at each level. Increments or decrements of 12½-25 mg. are generally sufficient. A daily dosage of 200 mg. is the maximum recommended for routine use. (As much as 450 mg. daily has been used in some patients.) **Side Effects:** Niamid, in clinical use, has been characterized by a significant lack of toxicity. It is generally well tolerated. Nervousness, restlessness, insomnia, hypomania, or mania, sometimes occur. Occasional headache, weakness, lethargy, vertigo, dryness of the

mouth, blurred vision, increased perspiration, constipation, mild skin rash, mild leukopenia, and epigastric distress may be obviated or modified by reductions in dose. Effects due to monoamine oxidase inhibition persist for a substantial period following discontinuation of the drug. **Precautions and Contraindications:** Hepatic toxicity has not been reported in extensive clinical studies. However, if previous or concurrent liver disease is suspected, the possibility of hepatic reactions and liver function studies should be considered. The suicidal patient is always in danger, and great care must be exercised to maintain all security precautions. The apathetic patient may obtain sufficient energy to harm himself before his depression has been fully alleviated. Niamid may potentiate sedatives, narcotics, hypnotics, analgesics, muscle relaxants, sympathomimetic agents, thiazide compounds and stimulants, including alcohol. Caution should be exercised when rauwolfa compounds and Niamid are administered simultaneously. Rare instances have been reported of reactions (including atropine-like effects, and muscular rigidity) occurring when imipramine was administered during or shortly after treatment

with certain other drugs that inhibit monoamine oxidase.

In Cardiology: The central effects of Niamid may encourage hyperactivity and the patient should be closely observed for any such manifestation. Orthostatic hypotension or hypertensive episodes occur in a few individuals and cardiac patients should be carefully selected and closely supervised.

In Epilepsy: Although in some patients therapeutic benefits have been achieved with Niamid, in others the disease has been aggravated. Care should be exercised in the concomitant use of imipramine, since such treatment with monoamine oxidase inhibitors has been

particularly useful for depressed office patients because Niamid provides:

Remission of depression—smoothly, gradually, without "jarring." Parker¹ reports that although Niamid is a slow-starting drug it produces a smoother effect than certain other antidepressants—those causing exaggerated CNS stimulant effects such as jitteriness, pressure of activity. "This is an advantage of nialamide [NIAMID] because such side effects frighten depressed patients and retard their improvement."

Notably low incidence of serious complications or side effects. After laboratory tests of patients on Niamid therapy, Ayd et al.² found: "Thus, in contrast to other antidepressants, nialamide [NIAMID] has not caused anemia or any disturbance in renal or hepatic function."

Convenience of once-a-day dosage.

1. Parker, S.: Dis. Nerv. System 20:2, Dec., 1959.
2. Ayd, F. J., Jr., et al.: Dis. Nerv. System 20 (Suppl.):34, Aug., 1959.

reported to aggravate the grand mal seizures. **In Tuberculosis:** Existing data do not indicate whether resistance of *M. tuberculosis* to isoniazid may be induced with Niamid therapy; nevertheless, it should be withheld in the depressed patient with coexisting tuberculosis who may need isoniazid. As with all therapeutic agents excreted in part via the kidney, due caution in adjusting dosage in patients with impaired renal function should be observed. **Supplied:** Niamid (Nialamide) Tablets, 25 mg.: 100's—pink, scored tablets; 100 mg.: 100's—orange, scored tablets.

More detailed professional information available on request.



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THERAPEUTIC INDEX



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Usual Dosage: Patients receiving no other anticonvulsants—*Adults and Children (over 8 years):* 1 tablet (0.25 Gm.) daily (preferably at bedtime) for 1 week. Increase by 1 tablet daily each week, until control. Dosage exceeding 2 Gm. daily presently not recommended. *Children under 8 years:* Order of dosage same as for adults, but start with $\frac{1}{2}$ tablet (0.125 Gm.) daily and increase by $\frac{1}{2}$ tablet daily each week, until control. (Where a smaller starting dose is required, use 50 mg. tablet.)

Patients already receiving other anticonvulsants—Adults and Children (over 8 years): 0.25 Gm. daily, and gradually increased while the dosage of the other drug(s) is gradually decreased. Continued until satisfactory dosage level is achieved for combination, or until other medication is completely withdrawn. *Children under 8 years:* Initially one-half the adult dose, or 0.125 Gm. daily. Gradual increases and decreases as described in adult regimen. (Where a smaller starting dose is required, use 50 mg. tablet.)

When therapy with "Mysoline" alone is the objective, the transition should not be completed in less than two weeks.

Precautions: Side reactions, when they occur, are usually mild and transient, tending to disappear as therapy is continued or as dosage is adjusted. Commonly reported side effects are drowsiness, ataxia, vertigo, anorexia, irritability, general malaise, nausea and vomiting. No serious irreversible toxic reactions have been observed. (Occasionally, megaloblastic anemia has been reported in patients on "Mysoline." The condition is readily reversible by folic acid therapy, 15 mg. daily, while "Mysoline" is continued.) As with any drug used over prolonged periods of time, it is recommended that routine laboratory studies be made at regular intervals.

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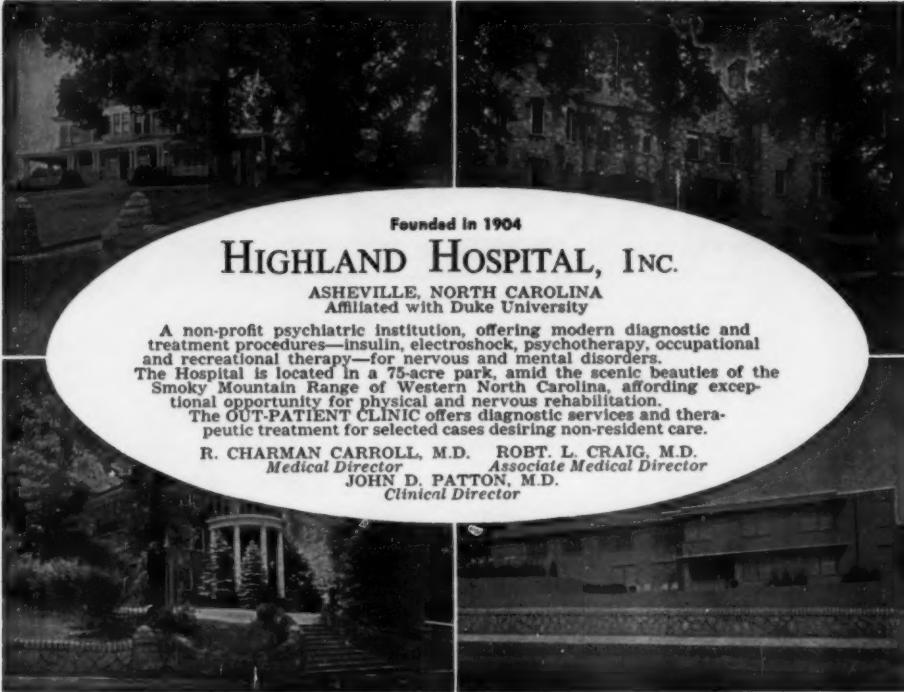
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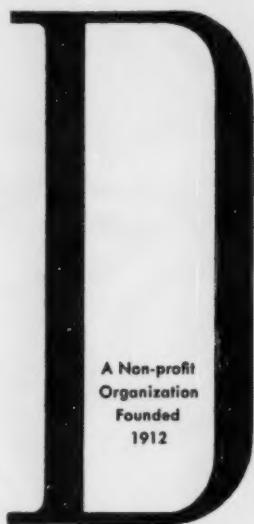


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